ULRICH TIGGES, MANDY MAYER and MARKO TUCAKOV (Eds.):

The International Swift Seminars Szczecin 2016
Summaries of the presentations

From 7th - 10th April 2016 the international Swift Seminars took place in the Hotel Nord, ul. Lubieszyńska 1, 72-006 Mierzyn, a suburb of Szczecin, Poland. They were preceded by two international Commonswift Seminars in Berlin 2010 and 2012, one international Swift workshop at Galeria, Corse 1994 and one International Swift Conference in Cambridge 2014. The Seminars were organized by Ulrich Tigges and Zofia Brzozowska, who was the local host. Spontaneous helpers during the course were Amnonn Hahn for technical directing and in parts Nikita Chernetsov for the event management. There were 84 attendants from 23 countries: Australia, Belgium, Cyprus, Czech Republic, England, France, Germany, Greece, Guernsey, Ireland, Israel, Italy, Netherlands, Northern Ireland, Norway, Poland, Russia, Serbia, Spain, Sweden, Switzerland, Turkey and Uzbekistan.

Zofia Brzozowska opened the Seminars and underlined the importance of international attention for the protection and conservation of Swifts and expressed her hope for promotion of this message in Poland. After his welcome address Ulrich Tigges remembered the victims of the German Nazis during the Second World War and the Shoah, among whom certainly were also bird lovers. Then 43 lecturers gave 49 presentations and one workshop. The following summaries were submitted, presented here in alphabetical order. In the afternoon of the 12th April a bus tour was made to the Szczecin Landscape Park "Beech Woods" (Puszcza Bukowa).

Four participants were able to attend the Seminars due to the fees paid by participants and expressed their thanks. Zofia would like to express her heartfelt thanks to all those who helped her with translating from English to Polish and vice versa. It was thanks to the generosity of the sponsors, Zofia Brzozowska, Maciej Kundzicz and Joanna Szkutnik, that the Seminars could take place in the Hotel Nord.

ELENA ABDULLAEVA:

Swift care in Uzbekistan, a Rescue centre for birds taken into care for subsequent release into the wild

We are a care centre officially registered by the State of Uzbekistan under the number N000096 from 17.09.2015. We are financed by our own income and by the support of friends.

What we do
We accept injured birds for rehabilitation and release into the natural environment.

What birds do we help
We are licensed from the State Biological Control Centre to receive the following birds: passerines, coraciiformes, caprimulgiformes and apodiformes. Priority for admission is given to birds which are difficult to rehabilitate, nurse or care for. They are exclusively insectivorous birds, for which it is very difficult for people to find the appropriate natural diet for feeding. They are, for example, Swifts, Swallows, Nightjars, as well as birds of prey and owls. For each species a different method of rehabilitation is used according to its lifestyle and natural diet.

How do we find birds
Through people who find an injured bird and need help. Our first step was to supply all veterinary clinics with information about the activity of our Centre, and we opened a telephone

hotline. The same information was published on www.birds.uz. Because of this policy, people can bring the birds they find to us.

Swift care season.
In our country swifts arrive in early March and remain until July. The chicks begin to hatch in late April - early May. Some couples form their offspring later until the end of June.
Our activity started in 2012. In four Swift care seasons 322 Swifts were given a second chance and more than 220 swifts were successfully released after rehabilitation. Besides the Swifts, 2 Hobbies, 1 Sparrowhawk, 1 Booted Eagle, 3 Scops Qwls, 1 Roller, 3 Nightjars, 2 Kingfishers, 5 House Martins and Swallows were successfully rehabilitated.

Our swift diet is 70% drones, 15% drone larvae, 10% crickets, 2.5% waxworm moths, 2% mealworms, 0.5% flies.

An additional important project is the erection and installing of nestboxes for Swifts. The Murad building company built 100 swiftboxes in 2015. They were installed in April 2016 with the help of the general public. We are currently in discussion with the head of the Murad company to have internal boxes installed into all new houses built by this company.

KALENDER ARIKAN,
on behalf of Kalender Arikan and Salih Levent Turan:

All about Swifts in Turkey

Four Swift species regularly occur in Turkey. They are summer visitors and migrants. Swifts pass over Turkey on migration between Africa and Europe. There is rich data about some Swift species in contrast to others. The data which was obtained by us and other researchers between 2010 and 2015 in different field studies about ecology and migration of swifts was evaluated as part of this work. Our other main sources of data about Swifts were records of universities birdwatching societies, web pages recording observations, thesis and various publications on the birds of Turkey. According to our studies and the literature review, four Swift species can be observed in Turkey between February and October in different densities. Table 1 – Table 4 show yearly movement, earliest and latest observations for four species between 2010 – 2015. On the basis of the data the Common Swift is common compared to other species. The number of observed Common Swifts is increasing year by year. However, Alpine Swifts (Table 2) stay longer than other species in Turkey. Little Swift was observed over a couple of southern provinces, in particular Hatay and Mersin, but only rarely (Table 4). According to the Red Data Book for Birds of Turkey, the status of Swifts is A.3 which is equal to LC (Least Concern – IUCN). There is no special study/investigation about the population status or trends of Swifts in Turkey. The migration routes of swifts have now been properly identified based on data. Common and Alpine Swift pass over the middle of the country along the northwest – southeast migration flyway. Pallid Swift mostly use the Aegean cost to migrate. No data was found about the migration of the Little Swift over the country. There are general nature conservation laws to protect biodiversity including Swifts in Turkey. The protection of natural resources in Turkey is the responsibility of the Ministries of Environment and Forestry. The legal framework for the protection of nature was established by the Laws on Land Hunting. In addition “Animal Protection Law” is in force under the responsibility of the Central Hunting Commission (CHC) . Also Turkey are a party to important international nature conservation regulations which are

underpinned by national law. However, in addition to the various threats which Swifts face, new ones have been added such as wind turbines. These on-going threats are cumulatively affecting the survival of Swifts in Turkey.

Year(s)	2010	2011	2012	2013	2014	2015	Total
Number of Observations	1140	1056	1274	1801	1897	2177	9345
Date and Location of Earliest Observation	21th Feb. Hatay	20th Feb. Şanlıurfa	3th Mar. Hatay	27th Feb. Antalya	13th Mar. Manavgat	25th Feb. Adana	-
Date and Location of Last Observation	29th Sep. Denizli	25th Oct. İstanbul	28th Oct. Hatay	10th Oct. Bergama	2th Nov. Şanlıurfa	20th Oct. İstanbul	-
Peak Number of Individuals – Observation Location	500 Ankara	150 Ankara	400 Gaziantep	5000 Kuyucuk Gölü	560 Ankara	2300 Gaziantep	-

Table 1. Common Swift observation data between 2010 – 2015 in Turkey.

Year(s)	2010	2011	2012	2013	2014	2015	Total
Number of Observations	457	523	610	733	884	1109	4316
Date and Location of Earliest Observation	4th Mar Hatay	28th Feb. Hatay	3th Mar. Hatay	14th Mar. Adana	1th Mar. Hatay	8th Mar. Yalova	-
Date and Location of Last Observation	5th Nov. Antalya	18th Nov. İstanbul	14th Nov. Antalya	7th Nov. Antalya	28th Oct. Hatay	18th Nov. İstanbul	-
Peak Number of Individuals – Observation Location	600 İstanbul	870 Hatay	2000 İstanbul	610 Adana	1350 Hatay	567 Mersin	-

Table 2. Alpine Swift observation data between 2010 – 2015 in Turkey.

Year(s)	2010	2011	2012	2013	2014	2015	Total
Number of Observations	27	39	14	89	55	17	241
Date and Location of Earliest Observation	20th Apr. Aksaray	14th Apr. Kayseri	9th Apr. Balıkesir	7th Apr. Antalya	6th Apr. İstanbul (KB)	19th Mar. Niğde	-
Date and Location of Last Observation	1th Oct. İstanbul	22th Oct. İstanbul	14th Sep. Ankara	28th Oct. Adana	13th Sep. Hatay	17th Oct. Bursa	-
Peak Number of Individuals – Observation Location	12 Hatay	18 Ankara	50 İzmir	58 Hatay	10 İzmir	30 Düden	-

Table 3. Pallid Swift observation data between 2010 – 2015 in Turkey.

Year(s)	2010	2011	2012	2013	2014	2015	Total
Number of Observations	21	23	12	32	18	19	125
Date and Location of Earliest Observation	10th Mar. Hatay	6th Mar. Hatay	4th Mar. Birecik	18th Mar. Antalya	28th Mar. Hatay	30th Apr. Birecik	
Date and Location of Last Observation	13th Sep. Hatay	2th Oct. Hatay	30th Aug. Adana	4th Oct. Mersin	25th Sep. Adana	10th Sep. Niğde	
Peak Number of Individuals – Observation Location	13 Hatay	40 Ş. Urfa	15 Hatay	14 Mersin	20 Hasankeyf	15 Hatay	

Table 4. Little Swift observation data between 2010 – 2015 in Turkey.

CHRIS BAINES:

Swifts
A partnership with pilgrimage

Many of the world's religious faiths have centres of pilgrimage in towns and cities across Europe and beyond. These religious buildings are often very large urban landmarks – cathedrals and churches, mosques, temples, and synagogues. Some of them already host long-established colonies of nesting swifts and all of them have that potential.

Every year millions of people around the world make journeys between their homes and these centres of pilgrimage. Their environmental impact is enormous, and often damaging, but they are a major force in the world, and there is now a growing commitment to making pilgrimage a mechanism for positive environmental action.

The European swifts' life pattern is inspiring and it is readily appreciated by those pilgrims who learn about it. Long journeys with a very specific geographical destination and the loyalty to partners are just two swift characteristics that appeal to pilgrims.

By working in partnership with the world's faiths it should be possible to provide better protection for established swift colonies on their buildings, to provide significant new sites for nest box schemes, to communicate the story of swift natural history to new audiences and secure new resources for monitoring and research.

Many of the major religious faiths also have an influential presence in the rural communities of sub-Saharan Africa. By engaging religious communities in the north it should be possible to forge productive links in the landscapes where European swifts spend the winter months, and to begin improving the land management practices that affect the swifts.

Finally, and most ambitiously of all, the swifts may start to play a symbolic role in forging positive links between religions. The swifts that nest in Rome and Canterbury, in Jerusalem,

Bethlehem and Amman all share air space above these centres of northern pilgrimage, and feed together over the fields and forests of the Congo. That is a message worth promoting.

LUIT BUURMA & JAAP HAVEMAN:

Nocturnal mass gatherings of Swifts (*Apus apus* L.) and the nature-nurture riddle

Non-breeding Swifts have been discovered to assemble in big flocks at night above Lake IJssel in The Netherlands. Already in 1979 this phenomenon was detected and roughly understood by the first author but it took many years to prove the identity of the radar echoes that led to the discovery. It took even more consideration and discussion to provide a convincing biological explanation of the accompanying dusk and dawn ascent. After a first non-peer-reviewed conference paper (***APUS***list 2624: Buurma 2000, proceedings Int. Bird Strike Committee), additional radar work (***APUS***list 5059: Dokter et al, 2013, Animal Behaviour 85) confirmed the discovery. Although the phenomenon is now established in the scientific literature, the explanation is still a focus point for debate.

The 2016 presentation in Szczecin was meant as a short review of the earlier reports in Berlin (2010, 2012) and Cambridge (2014) which have been summarized in earlier proceedings of the International Commonswift Seminars (***APUS***life 4950 and 4951). In addition to the story already summarized in the Cambridge report (https://drive.google.com/file/d/0B_fx9kYNkQnlVFloQklVQzZMRUU/edit), the results of 10 nights of old radar film analysis of June and July 1979 were shown. We found a small but significant difference in geographical pattern and timing of the ascents between now and 35 years ago. It indicates the possibility that the Swifts‘ communal flight behaviour is partly learned. This forces upon us a thorough review of the never-ending nature-nurture literature, clearly a scientific challenge

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NIKITA CHERNETSOV:

Flight altitudes of foraging Common Swifts (*Apus apus*) in western Russia

Flight altitudes of foraging Common Swifts (*Apus apus*) and other bird species which are aerial foragers were studied across the range of altitudes in Belgorod Region (western Russia) in July and August 1990–1991. We used visual observations for recording birds flying below 75 a. g. l. and standardised optical observations in vertical binoculars and telescope to record individuals flying up to several kilometres high.
Common Swifts were recorded up to the height of 3-4 km. Even though 44–64% of all Common Swifts were recorded below 50 m and median flight altitude was ca. 50 m, in 53% of all observation days (n=38) some birds were recorded at >1000 m a. g. l. Of three species of aerial feeders studied:Common Swift, Barn Swallow (*Hirundo rustica)* and House Martin (*Delichon urbica*), Common Swift has most commonly foraging above 100 m and was least influenced by the vegetation on the ground. Flight altitude of Common Swift increased with the wind speed. The activity of Common Swift peaked around noon and then again in the evening. High-altitude flights during evening twilight might not have been related to foraging, but midday high-altitude activity likely represented feeding.

STEFANIA D'ARPA:

The influence of meteorological factors on the autumn migration of Common Swifts in Southern Sweden

Common Swifts (Apus apus) are birds of extraordinary flight and migration skills. They are an important indicator species and the size of migratory populations in Sweden is seasonally monitored. The numbers of passing Swifts (visible migration) is recorded daily by the staff of the Falsterbo Ornithological Station, in southern Sweden. In my research I have studied how meteorological variables, plus the NAO Index, influence the size of autumn visible migration of Common Swifts over a period of 23 years (1988 – 2011). In addition I have assessed the population trend of the Common Swift for the same 23 years.

Two parallel analyses have been run on seven weather variables: first on the presence/absence of the Swifts, and then on the number of passing Swifts. In the first case a Binomial Regression has been applied, whereas a Negative Binomial Regression model has been run for the second case. For Regression analyses, R version 3.2.3 has been used, and for the population trend analysis TRIM (TRends and Indices for Monitoring data) 2.2.

Binomial regression revealed that the greatest influence on the presence of the Swifts is given by daily mean temperature (Est.±St.Err. 0.400±0.028), visibility (0.028±0.006), but wind speed has a slightly negative effect (-0.066±0.022). The only weather factors that produce significant variables are precipitation and cloud: precipitation of more than 5 km away from the station (1.027±0.436) and up to 10% of sky covered (-0.754±0.300), both with significance level $p<0.05$.

Negative binomial regression on the volume of Swifts has been performed separately for [continuous – I don't understand what continuous means in this context, nor do I understand the difference between variabls and factors but these may be technical terms in statistical analyses of these kinds] variables and factors. Amongst the variables, again, daily mean temperature has the highest positive effect (0.921±0.031), followed by precipitation (0.118±0.017), visibility (0.018±0.005) and pressure (0.003±0.000), all with $p<0.001$. Wind speed showed no significance (0.032±0.027, $p=0.24$).

Factor levels that showed the highest positive impact are continuous moderate rain (1.880±0.838), cloud cover that has dissolved completely or diminished (1.502±0.638) and rain showers (1.425±0.692), all three with a significance p<005. Negative effect is found for dust (-3.269±1.248), drizzle or snowflakes (-4.048±1.195), fog (-4.153±1.625) and precipitation within sight but not reaching the ground or ocean surface (-4.756±1.383). Significant levels of the cloud factor (respectively: 4/8, 2/8, 7/8 and 8/8 of cloud cover) show estimates falling between 1.467±0.651 and 1.167±0.444. No significant effect has been found for the NAO Index. Moreover, a moderate annual decline of 2.14% of migrant Swifts has been observed.

Migration is a highly complex phenomenon for which analysis of meteorological conditions cannot be the entire explanation. Nevertheless, this kind of study can be a preliminary to further investigations e.g. with state-of-the-art tracking technology. Increasing knowledge of behavioural adaptations to meteorological conditions can help us understand new adaptations to climate change and enable us to take action for conservation.

GABRIELA DOBRUSKÁ:

The Educational programme "Swift School" in the Czech Republic is blossoming; the childrens' involvement in Swift conservation during 2015

The Swift school educational programme in the Czech Republic has been running for 4 years. The main idea of the programme is to strengthen public awareness about synanthropic birds and nature conservation through involving children. Any school can become a Swift school and help with Swift conservation. It has to meet 3 requirements: to protect actively existing breeding colonies or create new nesting possibilities participate in the Spring Alive programme (recording first Swift arrivals), and include swift conservation in the curriculum.
Sixteen new schools became a "Swift school" in 2015 bringing the total number of Czech Swift schools to 35. Schools installed nest boxes for 95 breeding pairs in 2015, a large proportion of which had been produced by children. Production of their "own boxes" has been demonstrated to be the best way to motivate children to take an interest in Swift conservation. There are webcams at some schools, which help to attract and sustain the childrens' interest in Swifts. Schools have installed 221 nest boxes in total over the last 4 years and have saved natural breeding sites at 12 schools with more than 80 breeding pairs.
We have also established a very good practice in cooperation with local firemen who are willing to help with installation.

PARCHARIDOU EFFROSYNI,
on behalf of Parcharidou Effrosyni, Kalpakis Stavros, Prousali Sophia, Karagianni Pinelopi, Praksitelous Anastasia, Mpairaktaridou Kuriaki, Mpousia-Foti Eleni, Kleidaki Xrysoula:

Swifts' care and rehabilitation in Northern Greece

Action for Wildlife (AfW) is a non profit organisation dedicated to environmental awareness and the care of injured wild animals and was founded by our fellow citizens in Northern Greece. To this day, AfW is supported completely by volunteers who are veterinaries, biologists and volunteers without any particular specialisation.

Over the last six years (2010-2015) AfW received on average 170 Common Swifts, 50 Pallid Swifts and 2 Alpine Swifts per year. Swifts represent 18% of the animals received annually. They are admitted to the shelter from middle March to late November. Care and rehabilitation is assigned to volunteers who have been specifically trained for this task. Knowledge is passed from experienced carers "on the job", through every day activities and practice. The care of swifts follows specific protocols and welfare rules. This procedure includes feeding, wound healing, medical care, the raising of chicks and rehabilitation. Feeding takes place four to six times per day. Diet consists of a mixture mostly the dried kitten food, vitamins and probiotics. The frequency and the diet depend on the needs of every individual.

Swift rehabilitation is a demanding task. AfW comes across many difficulties, such as the rejection of food, feather breakage and sudden deaths. However, every year about 54% of the swifts manage to return to Nature.

IGOR FEFELOV:

Pacific Swift, its breeding biology, and dates of its arrival and departure in Siberia

The Pacific Swift (PS) in Eastern Asia is distributed across the Ob' River drainage area and more east. It is of a slightly larger size than the Common Swift (CS), and has a deeper tail fork, white rump, and scaly painting on the underpart in adults which is not seen in the adult CS. The call is lower and sharper in comparison to that of the CS, "more sibilant and less buzzy" according to Brazil (2009).
In general, the breeding biology, dates of migration, and feeding habitats are similar to those of the CS in the same regions, at least in Eastern Siberia, but nesting requirements can differ as the PS almost never breeds in tree holes in forests, unlike the CS. In the south of Eastern Siberia, the PS breeds usually in cliffs and in various types of building. In villages and towns it breeds in houses of a height of 6 m and above, and in Russian cities it especially likes to breed in multi-storey buildings erected in the middle or late XXth century. Newer constructions provide much less possibility for nesting. Reveal linings in tall wooden houses, and holes in roofs and wall render in concrete or brick compounds, are its favourite places to nest. In nature the PS strongly prefers crevices in cliffs and rocks.
Nesting fidelity seems to be high in adults. On the rocky islands of Lake Baikal near Olkhon Island, six out of ten ringed adult PSs returned to their nest holes in the next year; a bird (ringed probably as a nestling) was found breeding at c. 130 km to the NE in 13 years (Olovyannikova 1998, 2001).
Wintering areas are SE Asia, Sundas, and Australia, but little detail is known as yet.
The timing of the presence of Pacific Swifts in Irkutsk is shown in theTable.

Table of arrival and departure dates of the Pacific Swift in Irkutsk (52° N, 104° E)

Source	**Bogorodsky 1989** *(few observers)*	**Fefelov 2015, with add.** *(wider area, many observers)*	**Voynovskaya 2015** *(eastern part of the town, few observers)*
Date of the first record (in May)			
Years	1954-1985 (n=23)	1995-2015 (n=17)	1996-2014 (n=19)
M ± *SE*	**20th** ± 1	**15th** ± 2	**18th** ± 1
Limits	**15th-25th**	**7th-21th** (1990s – 17th-21th)	**(5th?)14th-20th**
Trend	From 1974 to 1985: no (R^2=0.05)	From 2005 to 2015: later arrival (R^2=0.29)	No (R^2=0.05)
Date of the last record (in August)			
Years		1999-2015 (n=15)	1996-2014 (n=19)
M ± *SE*		**17th** ± 2	**16th** ± 1
Limits		**12th-23th**, rarely to 28th	**12th-20th**
Trend		No (R^2=0.04)	No (R^2=0.06)
Duration of presence, in days			
Years		2001-2015 (n=13)	1996-2014 (n=19)
M ± *SE*		**95** ± 3	**90** ± 1
Limits		**86-110**, usually 90-102	**85-96**
Trend		From 2005 to 2015; slightly less (R^2=0.17)	No (R^2=0.004)

In general, spring dates for the middle of the XXth century tended to be later than now. Nowadays the weather is significantly warmer (the increase of average temperatures in May from the 1950s to the 2000s was c. 1.5 °C in Irkutsk, and less around the town), but arrival dates seem to be more affected by a natural frequency of warm atmospheric fronts in May, which occur more often now and are favourable to the arrival of the first PSs. The earlier arrival in the 2000s in comparison to 2010s, is explained by warmer and less variable weather in spring in the 2000s. Local breeding pairs or groups, in various parts of the town can arrive later or leave earlier than the dates for the generality of PSs, and that is to be expected. It can have an effect on date recording, resulting in significant differences in average dates between different samples (see Table). The wider collection of data inside all of Irkutsk, with more observers, results in wider limits. Probably the shortest period of the presence of breeders in their nesting habitat in Irkutsk is 80-85 days. The majority of PSs arrive after the 18-20th of May. A visible decrease in Swift numbers in Irkutsk begins in the last days of July/early August. On Lake Baikal, PSs arrive usually after the 20-24th of May and migrate in early June, but some birds can delay their departure until the 2nd of September, due to climatic features in this area.

MAURO FERRI:

Association of Swifts with ancient and modern architecture in Italy

Main association of Swifts with buildings in Italy since historic times
In 1797 Lazzaro Spallanzani recorded that Swifts (in Italy) were nesting in tiled roofs, towers, high buildings and in „dovecots for Swifts“ and since that time not much has changed; to bring the situation up to date it is more precise to say that these birds nest nowadays in tiled roofs (mainly of „*coppo* tile“ & some variants), in niches & crevices of walls (mainly scaffold holes & similar crevices in walls), and in historical (ancient) artificial nest boxes, so-called „Swift towers“.

Some new opportunities were added by the local availability of architectural characteristics such as traditional (ancient) ventilated roofs and walls (as in Piedmont and in Sicily), or the boxes of roller shutters and in window frames (Milan downtown, the nearby Canton Ticino, Liguria, Sicily), and there may be other possibilities yet unidentified.

I discussed the general and some specific aspects of these nesting characteristics in the talks I gave during the Swifts Seminars in Berlin (2010, 2012), which I have added to in recent papers (Ferri M., 2011; Ferri M., 2016, available in PDF, in Italian but one available in English). About the specific association of Swifts with buildings, and about the role and importance of individual architectural characteristics for the Italian populations, there is my recent paper Ferri M., 2016 in which I set out this argument and tried to evaluate some local situations to try and get an impression of the scale involved.
I have assumed that tiled roofs are the most common nesting habitat (90%?), followed by holes, niches, crevices in walls (9%?); with a few in roller shutters, traditional ventilated roofs and walls, and in aperture nest holes in historical structures (>0,1%?).

An irregular, patchy decline of Swift populations in Italy?
But nowadays roofs are being renovated for thermal insulation, historic monuments are being restored and, above all, the „core technical needs” of these works are managed under very crude

guidelines to mitigate against urban „feral" pigeons because of their droppings. But project managers and building owners conflate „pigeons", with all birds, adopting really drastic approaches which result in a general closing of any hole.

Plaster, polyurethane foam, needles and dense nets are placed everywhere, causing the exclusion of Swifts (as well as bats, small passerines, jackdaws, geckos, lizards), and what is worst, their actions result in the death of an unknown number of little animals since the works inevitably start by default in April or May and last during the fine weather season.

This has obviously resulted in very bad times for Swifts (and bats) but there is no relevant information and no data. In reality you will still hear plenty of Swift calls in the skies of Italian towns and around rural buildings, so people continue to believe that they are still abundant, and maybe it is so. But it is my opinion that the colonies which are surviving the sealing of *coppo* tiles and scaffold holes by adapting to alternative sites, are becoming smaller year by year; not to mention the loss of adults and chicks unintentionally killed during works managed regardless of the welfare of animals.

How great is the damage? Based on local empirical evaluations where, in all cases, there has been a catastrophic situation caused by the suppression of nesting sites (both in ancient and modern buildings), it is possible to have an idea of the effects of this brutal way of trying to prevent urban „feral" pigeons (and Starlings) nesting and roosting in buildings and monuments. If you stand in the middle facing a building and look to see how many of the *coppo* tiles and scaffold holes are still free, you will get the distinct impression that most of them have been recently closed, and will be so forever.

In reality all maintenance work on roofs results in the sealing of the cavities of the first line of coppo tiles, eroding at a rapid rate the sites available each year („40-50% of the availability sealed?). Moreover, every restoration or maintenance of monuments results in the sealing of all the scaffold holes and niches, excluding their use for the most part by Swifts („80%?) not to mention bats, little passerines, lizard and geckos, butterflies and moths.

The worst effects are to be seen in the remaining medieval or renaissance and even more recent Swifts towers (and sparrow towers), fated („100%) to be abandoned, left to fall into ruination or to be transformed into domestic accommodation, without any consideration or regard for this very special Italian legacy which during the XV to XX Centuries developed structures for breeding these species for food, each of which included some hundreds of nests.

Nobody noted or appreciated the know-how developed by our ancestors through the centuries in understanding the needs of these birds, as evidenced by the thousands of these facilities (often each of hundreds of nests) over half the country and now neglected by owners, authorities and agencies. At least six of them have been restored and are now managed for the purpose of studying Swifts and for educational purposes (in Boano, Ciani, Caffi, Minelli, Colnago, and Gelfi – either by me or by personal contacts), and two new colonies have been developed in modern structures designed for the same purpose (in Micheli, Basso, again by personal contacts), thus replicating the activities of Spallanzani in the XVIII cent.

Causes and solutions

On the subject of taking the wrong path to manage buildings against access by pigeons, in early 2000, after unsuccessfully trying to stop building work in progress which was sealing the ancient scaffold holes, the person responsible for the project who was sealing all the holes of a tower,

protested he was right to do it in that way as he was implementing specific guidelines promoted by two ornithologists in their well respected field guide (1998) for the management of urban pigeons and starlings. He kindly showed me the pages of his favorite reference material, the above field guide, where it clearly stated „*the holes in the wall should be closed in order not to offer possibilities of roosting or nesting to the birds",* with diagrams showing what was meant by „holes". Of course this well respected field guide said nothing about the need to be selective in the reduction of the holes, and what is worst, said nothing about the need to be aware of the little animals that could be scared by the works undertaken to close the holes, and who were often hidden in the depth of the holes and consequently buried alive during the sealing.

After this bitter experience colleagues and I decided to begin documenting the successful experience of selective reduction of holes in order on the one hand to exclude (only) urban „feral" pigeons but on the other, to preserve and potentially attract Swifts. We finally gained the agreement of a team restoring (during 2007-2012) the medieval bell tower called the Ghirlandina, a UNESCO site (Modena, Italy), to modify selectively some 120 scaffold holes and then recorded our methods and the success in preserving nest sites for the Swifts (Ferri et al., 2011 in English; Gelati et al. 2011, in Italian; Ferri et al., 2016; Ferri M., 2016).

On the basis of this first success we started the yearly June festival „Swifts & Fun- Festival dei rondoni" (2013-2016) calling for local Swifts walks (www.festivaldeirondoni.info) in defence of remaining Living Monuments, in collaboration with www.ornitho.it (2015). Finally we decided, in addition, to spread more intensively agreed good practice and to advertise the deadly effects of bad practice with a dedicated society and website (www.monumentivivi.it) which also offers robust tools to actively help, defend and preserve Swifts and other small insectivorous species in buildings.

Recent successful cases include the restoration of a parish bell tower (in Quarona, VC, Italy) with a small colony of Alpine Swifts, and the restorations of the apses of the medieval basilica of San Petronio where the colony of common Swifts has now been adopted by the Basilica who have decided to follow good practice to maintain and defend it.

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MARUO FERRI:

Spallanzani's influence on modern studies of Swifts

Lazzaro Spallanzani
Lazzaro Spallanzani (1729-1799) stands pre-eminent for applying bold and imaginative experimental methods to an extraordinary range of hypotheses and phenomena. He was an Abbot (*L'Abbate Lazzaro Spallanzani*), a professor of philosophy with interests in classical languages, but also in biology, microscopy, mathematics, astronomy, physics, chemistry, geology, meteorology, and he was a pioneer in vulcanology and other fields.

After a brief period in Bologna he became Professor of Natural History at the University of Pavia (1769-1799), travelled widely for study, and was very active in the field both in Italy and abroad, and, above all, he was an acute recorder of natural phenomena. He attacked the theory of spontaneous generation and was also a pioneer in animal insemination, digestion, animal tissue regeneration and a pioneer in many other fields of natural history, e.g. in 1793, he first postulated the idea of an unknown system of sense in bats, much later known as „ecolocation" (Ricucci, 2008).

Spallanzani and the Swifts: the monographs on „five Swallows"
So how did Lazzaro Spallanzani study Swifts? He wrote the report „*Viaggi alle due Sicilie e in alcune parti dell'Appennino*", made up of six volumes, 1792-1797, in which the VI Volume (288 pages) was an appendix dedicated to 8 monographs (handbooks) about 5 species of „Swallows" (Barn Swallow, House Martin, Common Swift, Sand Martin, Alpine Swift), the Scops owl; and two monographs on the eel.

He reserved as many as 55 pages for the Common Swift and for the Alpine Swift 14, recording observations, studies and field and laboratory experiences about many topics such as nesting habits, structure and materials of nests, saliva to glue the nest, nests in tiled roofs, towers, high buildings and „dovecots for Swifts"; importance of „Swift towers" to enable precise observations, aerial life, nocturnal flight, feeding habits, indifference to man when in the nest, the growth of the *pull*i, their weight and condition before fledging, calculation of their power of sight to see flying insects, experimental exposure to extreme cold, challenging the Linnean theory of their over-wintering in churches, postulation of their need to migrate because of the dearth of their food. He (a first in the study of birds) used red thread to mark the feet of two nesting Swifts and checked their return to their nest the next year.
About the Alpine Swift he wrote about the following topics: its presence in mountains and cliffs and also in „dovecots for Swifts", management of the Swift towers, its fledglings considered as valuable food, nest fidelity, comparison with the Common Swift, arrival in mid March (!!), nesting, hatching, and its offspring, departure in October, differences in breeding habits with the Common Swift (two broods), its ability to rise from the ground and fly, experimental exposition to extreme cold, nesting seasons of barn Swallows, Martins, Bank Swallows (Sand Martins), Common and Alpine Swifts.

He records observations which lead him to believe in migration to Africa and in some wintering cases, to Mediterranean islands. Moreover, L.S. was generally interested in nest fidelity so he was the first to mark birds (Swifts and Swallows) and document their return (in the Musei Civici of Reggio Emilia in Italy, the curators of the „Collezione Spallanzani" maintain this memory by putting a red thread, as did Spallanzani with Swifts, on the wrist of visiting children) and he was interested also in feeding and prey species, in visual acuity (he measured the power of the sight in the field by watching Swifts hunting flying ants from a distance of 100 metres).

Not a few of his observations were done in the structures he called „dovecots for Swifts" which today are known as *torre rondonara* (Swift towers), a complex of artificial nests for Swifts in use in Italy since medieval times. L.S. often spent his summer holidays as a guest of tower owners, asking for a bedroom in the dovecots where he used to observe the Swifts in their nests, so he was able to write „thanks to these nest cells I had the opportunity to make a series of observations which would not have been easy to do otherwise" (L.S.: Handbook n° 3, 1797). And this aspect of his study of Swifts marked his greatest difference with naturalists of his time and for next almost 150 years.

The „Travels to the two Sicilies…", an international bestseller

The six volumes of „*Viaggi alle due Sicilie …*" became an international bestseller of the XVIII Cent, quickly translated into French (1795-7, Berne), German (1795-8, Leipzig), English (1798 London) and again into French (1800, Paris), meanwhile the volume with the eight handbooks was reprinted in Italian in 1825-26 and in 1832. Unfortunately Volume 6° was inserted only in the French edition and this fact made more difficult the dissemination of L.S.'s studies on the 7 species discussed in the 8 handbooks.

In undertaking his studies L.S. corresponded with colleagues throughout Europe (as he did on bats where he postulated an unknown sense). On Swifts L.S. read carefully Pierre Belon, (L'Histoire de la nature des oyseaux, 1555) and quoted and refuted the conclusions of Guéneau de Montbeillard (in Buffon, Ed., Histoire Naturelle,T. XIII, Oiseaux, 1799) with the evidence he had assembled in his researches. L.S. appeared to know nothing about other ornithologists or naturalists interested in Swifts such as John Ray (in Francis Willoughby, Ornithologiae Libri tres, 1676. 156-157) or Gilbert White (1720-1793, reported only in G.White, T.Brown, Natural History of Selborne, 1840).

On the other hand it seems that Edward Jenner (1749-1823) knew something of L.S. as he reputed him a „genius" (see Baron J., 1838, The life of Edward Jenner M.D.) but although there is a lack of evidence of any direct knowledge of the monographs of L.S., it is interesting to note that E.J. similarly developed an interest in experimenting with hibernating Swifts with cold and in marking Swifts, albeit in different way (shortening the nails) to identify the birds in the nests after their arrival from migration (1,2 and seven years after the marking), as was reported three times in 1824 by his nephew J.C. Jenner (or G.C, or H.C.).

Studies on Swifts after L.S. up until Emil Weitnauer

After L.S. the study of Swifts remained basically at the same stage as in his handbooks for around 150 years until developments began with Emil Weitnauer (Am neste des Mauerseglers *Apus apus apus*, 1934-1946; Der Ornithologische Beobachter, October 1947; 133-182). Then he was followed by Hans Arn-Willi (Biologische Studien am Alpensegler, 1950), Jukka Koskimies (The Life of the Swift, *Micropus apus* (L.), in Relation to the Weather, 1950), David Lack, (Swifts in a Tower, 1956), Emil Weitnauer und Erwin R. Scherner (in: Urs N. Glutz von

Blotzheim, Handbuch der Vögel Mitteleuropas, 1980, 671-732), Erich Kaiser (1984, 1992, 1993, 1997, 2004).

Of great interest is the role of Emil Weitnauer who in 1934 had the revolutionary idea of watching Swifts in their nests through a glass roof: a convergent evolution with the path of L.S. in the development of such studies?

Of course E.W. used the tools of his time (a nest box designed for starlings, glass) and lay down in the gable where he placed his nest boxes, but he obtained accurate observations, as had L.S. in 1797, peeking at Swifts parents and chicks in the breeding cells and taking sequential pictures of the development of chicks, without manipulating and altering the behaviour of the birds (Weitnauer, 1947).

Emil Weitnauer, David Lack and others

In 1946 David Lack visited Weitnauer and then in 1948 adopted nestboxes with glass for the tower of the Oxford Natural History Museum (Bromhall, 1980), and in 1956 wrote „Swifts in a Tower".

In 1958 Erich Kaiser visited Lack and then started his own colony in Frankfurt improving significantly the method for observing a colony by using a new kind of transparent nesting cell, followed later by others (e.g. Jan Holmgren, Skurup, S, mid '80; Robert Graham). We do not know if the young E.W. read the monographs of L.S. before in 1934 adopting glass for the roofs of his nest boxes but in Emil Weitnauer und Erwin R. Scherner, 1980, in: Urs N. Glutz von Blotzheim, Handbuch der Vögel Mitteleuropas, 1980, 671-732 we can read accurate quotations from „L.S. Travels" (in Italian, the reprint of 1825-26), so it is fair to conclude that the monographs of L.S. were very useful to Weitnauer in 1980, and maybe they influenced his work in 1934, and in turn influencing Lack, Kaiser etc., but there is no evidence for these connections.

The L.S. monographs on common and Alpine Swifts in modern English

The monographs of L.S. on Swifts were circulated only in Italian and French and were not easy to use; the original and the reprints (1797, 1826-26 and 1832) were not even easy for readers in Italian because the writing of a scientist of XVIII Cent was both opaque and complex, including the use of many outdated words. And, of course, English-speaking Swift fans had to read them in Italian or in French. All of which raises questions, and doubts, about the extent to which the Abbot had exchanges with, and made contributions to, the authors of his own times, and also about his influence on modern studies of these same species. So in order to remedy this situation, albeit belatedly, and thanks to the valuable collaboration of Edward and Mandy Mayer we have just finished a translation from the XVIII Century Italian into modern English of the two monographs on common and Alpine Swifts. These translations will be available as an appendix of a short paper to be edited in the months ahead.

Acknowledgements

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VIC FROOME:

This presentation is about how I have worked to try to stop the extinction of breeding Swifts in Guernsey. This is very difficult, as we have an extremely small population on the Isle, estimated at 100 pairs, with the majority in and around the town area.

I have made, bought and fitted c. 600 nest boxes over 14 years. In the Church where I was first asked to save the Swifts, the numbers have remained stable, whereas very little success has been achieved elsewhere, despite creating 30 new sites, including 10 "Swift Towers".

I have encouraged Schools, Architects, Housing Authorities, Builders, Government Departments, Businesses, and been in touch with all the media including 2 TV Channels, Radio stations, Press, and have also printed 2000 booklets.

It becomes very frustrating to see so many Swifts passing us on migration, and to contemplate our neighbour, France, where so many more Swifts live and express their wonderful screams in and around all their towns and villages.

ENRIC FUSTÉ:

Inappropriate diets for insectivores: non-insect based diets are considered inappropriate and harmful

It is essential to be aware of the poor results and the risks to the survival of chicks hand-reared using wrong diets (meat, pet food, grain, lactic formulas, fly maggots, etc). It can be established that the poor growth observed on insectivore chicks hand-reared with non-insect diets is clearly a husbandry matter, related specifically to the diet. Almost all show a stunted appearance when compared to their conspecifics hand-reared with insects. Low body weight or poor growth may be caused by any factor that interferes with the homeostasis of the nestling; improper feeding (insufficient energy, unbalanced nutrition or inappropriate diet).

Nestling nutrition is the most obvious mechanism that influences growth and body size and it is a major factor in the husbandry management for any species, particularly nestlings, as growth is the period in which most nutrients are necessary at their maximum levels. In young altricial nestlings, the energetic cost of growth is often more than 50 per cent of the daily metabolizable energy requirements. Birds are very sensitive to acute deficiencies of some nutrients. Insectivore chicks under non-insect diets show poor growth rates, clearly resulting from being fed with a diet that differs significantly from its natural food. The nutritional status of a growing bird is based on its ability to assimilate and metabolize the supplied food.

Insectivores, as with other faunivore birds, rely on a very effective digestive enzymatic capacity. Animal food prey is high in protein with a balance in essential amino acids, similar to the bird's requirements. In terms of nutritional components, insects are high in proteins and lipids, with the amino acid balance almost as good as vertebrate prey, with good sources of phosphorus, vitamins, and trace minerals but low in calcium. Looking at a non-insect diet (e.g. cat food), we can establish that it could be complete in terms of macro-nutrients, with proteins and lipids content similar to those observed in insect diets. Despite these similarities, nutritional strategies determine the types of food that may be consumed without digestive or metabolic complications, hence species are adapted to foods that are attainable and can be metabolized appropriately by an adapted digestive tract. Insectivore birds have a moderate rate of passage, with an efficiency of digestion that approaches 100 per cent of the non-chitin components of insects. On the other hand, carnivore birds have a slow rate of passage, an adaptation to complete efficiently the digestion of vertebrate prey. A Common Swift or any insectivore bird fed with a carnivore diet, may have less opportunity to assimilate and metabolize the food completely. A theoretically balanced diet may appear to have all required nutrients, but in fact it is nutritionally inadequate due to the interaction of specific nutrients. This imbalance may be caused by excess of a particular nutrient impairing the metabolism of another functionally similar nutrient, causing a decrease in its absorption or increasing its catabolism or excretion. When observing the feather quality, non-insect diets produce a poor plumage and usually cause dirtiness on the feathers. Observed flight performance at release is questionable (they rarely manage to fly high). Numerous birds on a non-insect diet show retained feather sheaths during the hand-rearing process and need manual preening. Even doing so, fault-bars at the spot where the sheath

constricts the feather leave a weakened structure. Birds rely on two major sources of energy, lipids from fat stores and proteins. If they do not have enough lipids, they may start protein catabolism at a stage when proteins are fundamental for the development of vital organs and muscles. Adipose tissue is not observed in chicks on a non-insect diet, in contrast to birds on insect diets. The fat deposit is important to avoid formation of fault-bars, defective barbule formation which may be points of breakage in the feathers. If fat stores are depleted, birds start a compensatory use of protein, catabolising muscle tissue. This effect can cause the release of endogenous corticosterone, detrimental while feathers are developing. Other researchers of passerines have observed how endogenous corticosterone released under physical stresses (e.g. food restriction) result in greater inter-barb distances in primaries, secondaries and rectrices, fewer barbules and weaker feathers when compared to control birds. Body weight and plumage condition are essential indicators of an individual's chance of survival on release. Low fledgling body weight can lead to low fitness and thus a decreased chance of survival. Common Swifts need an exceptional body condition at the fledgling stage.

They need considerable flying abilities and therefore a large pectoral mass. Apparently the young spend the first night after fledging on the wing and may start on the migration shortly after leaving the nest, a long journey crossing the Sahara to the wintering fields in Africa, migrating at high altitudes, often above 2000 m. Common Swifts require adaptation to execute fast movements in low atmospheric levels and restless flight, usually at high altitudes with low oxygen pressure, which represents great energy expenditure. Dull plumage, which may consist of severely malformed feathers, cannot supply the flight performance, necessary insulation or waterproofing. NEITHER OF THESE INHIBITED GROWTH RESULTS CAUSED BY WRONG DIETS, LOW BODY WEIGHT AND POOR FEATHER CONDITION, SEEM COMPATIBLE WITH SURVIVAL IN THE WILD.

Probably only a small percentage of even wild-raised nestlings survive to reproduce. We cannot provide for the needs of orphaned Common Swifts as their parents do, but we must emulate them as closely as possible if we want to give the rescued bird any chance at all of survival, initially of its long migration journey, and then to enable it to successfully reach reproductive age.

ADAM GATNIEJEWSKI and ALEKSANDRA MOTYKA:

No country for Common Swifts

Common Swifts (*Apus apus*) have settled and bred in Polish cities since "for ever" and usually in large numbers. A species that used to nest in rock cervices has adapted to live in urban areas when brick buildings with many holes and cavities appeared. Both old housing and the new concrete slab buildings (which are seen throughout Eastern Europe) could be inhabited by the Common Swift. Its nest site must be located high enough, with a small opening and a lot of space for chicks, and correctly oriented – the entrance has to face east or north and be easily accessible by flight for a Common Swift. An important condition is the presence of other Common Swifts, as the bird prefers to nest communally. These are basic and well recognised features, which must be fulfilled by potential Common Swift breeding sites. As these requirements are not high, Polish cities should be full of Common Swifts.
This was the situation till several years ago.

At the beginning of the 21st century, many buildings, especially concrete slab blocks of flats, were thermally insulated. That process caused a systematic destruction of Common Swift breeding sites. The mechanism for destruction remains in place: institutions and architects, appointed by the administration of building communities, and responsible for preparation of documentation prior to thermal insulation works, do not take into account the existence of breeding sites of protected birds on the façades of the buildings and do not record it in their documentation. The investors do not pay attention to these deficiencies in the documentation and contractors undertake practical work based on incomplete documents. The contractor does not take into consideration the breeding season when planning the works and, as a result, the holes under the roof (in which birds are living) are often bricked up, even with birds inside.

There are many scientific and practical publications about Common Swifts and conservation of their breeding sites prepared by universities, NGOs, and by Public Administration Offices, like the nature conservation departments of municipal councils, Generalna Dyrekcja Ochrony Środowiska (General Office of Nature Conservation) and its regional bureaus. All the necessary information about protecting Common Swifts is easy accessible – it is the lack of interest among the investors and contractors that makes it look like there is none. Some offices that publish brochures do not take any other action to protect Common Swifts.

In 2012 the author of this publication reported a crime to the Poznan public prosecutor's office consisting of the destruction of nesting sites of Common Swifts in two large districts of Poznan (tens of thousands of holes had been closed, often with birds trapped inside). Both cases were dismissed at the beginning of the investigation. None of the public offices with responsibilities to protect nature supported this case. As the above mentioned example shows, citizens, who are witnesses to these crimes against Nature, are powerless.

Even bringing the issue of the destruction of breeding places and the killing of protected animals to the attention of the investor, the contractor or the police, does not achieve results.
Despite the fact that Common Swifts and their breeding sites are legally protected in Poland*, the authorities often dismiss the case. Such so-called "protection" of Common Swifts' breeding sites has been going on for years**, and that is how at least 80% of the swifts' population in Poland has been destroyed. On what do I base this statement? In 2015 in Poznan, an inventory of existing, potential, destroyed and compensatory breeding sites of Common Swift was made.

In eight districts of northern Poznan more than 38,000 holes were closed, all were actual or potential breeding sites for Common Swifts. To compensate the for the loss of these holes, only 930 nest boxes were installed, of which more than 50% will never be occupied, as these were placed at inadequate height or on the wrong side of the building. Although the regulations are very strict, they are not obeyed by designers, contractors, investors, nor the authorities.

One of the main reasons for this situation is the Act of 1997 providing for the support of thermo-modernization works*** in the form of a grant covering up to 25% of the insulation costs. There are no biodiversity protection provisions in this Act. Therefore this topic is not included in the curriculums for training construction engineers and auditors. The Institute of Building Technology does not include these issues in its curriculum either. The second reason is that designers, contractors and investors lack knowledge about Common Swifts. Although there are studies on the topic of Common Swifts, those who have a direct impact on the survival of these birds and their breeding sites do not examine them. The third reason, which has a huge influence on all the people responsible for destroying Common Swifts' breeding sites, is the classifying these crimes as acts of insignificant social harm, which makes the culprits go unpunished. The

fourth reason is the passivity of authorities which should theoretically protect the environment, but instead limit their activities to informing and educating. This point can be proven by the fact that when relevant authorities are informed about damage to the breeding sites, they demand documentation relating to their original state. They also state that in order for the damage to be of considerable significance, it has to have extended over the area of,at least, a whole borough.

In the cases where these activities were done by persons or organisations who obey the regulations on conservation of the Common Swift and its habitat, there were no reasons for concern. For example, in one of the housing estates in Poznan, more than 500 nest boxes have been installed on a block of flats. They replaced the existing breeding sites and were immediately inhabited by Common Swifts. However, this is a very rare example of obeying the regulations. This is an exception from the sad reality. It is no better in other cities in Poland. There are dramatic appeals for the rescuing of Common Swifts published on the Internet, and there are numerous potential or existing breeding holes bricked-up on the facades of medieval buildings.

The activities of individuals, NGOs or universities often are successful, but these are local victories, that will not save the country-wide population of Common Swifts.
The tool that is needed for fighting for the survival of the Common Swift must be the law placing obligations on citizens, entrepreneurs and officials.

When the requirements of environmental law and nature conservation become the regular way of doing business for institutions when granting permission for thermal insulation or the renovation of buildings, and when the designers, contractors and investors are forced to obey the law, then, and only then, will the conditions for protecting the breeding sites of Common Swifts be fulfilled.

* Polish national law: articles 6.1 and 6.2 of *Prawo ochrony Środowiska* (*Nature Concertation Act*) from 27.4.2001; European law: *Directive on the Conservation of Wild Birds* (EWG 79/409/EWG from 2.04.1979)

** Since publication of Ustawa o wspieraniu termomodernizacji i remontów (thermos-modernization works and renovations support act) in 1997 unified publication from 30.5.2014

*** ibidem

INGOLF GRABOW:

Nesting Sites in Frankfurt on the Main

The Frankfurter Mauersegler-Initiative (Frankfurt initiative for Common Swifts) was founded in 2003, after a regional conference about the Common Swift in Frankfurt Zoo. The aim is to record nesting sites and to establish new nest boxes in and around the city of Frankfurt. In the period from 2003 to 2015 we have created 2318 new Swift nest places (960 internal and 1358 external).

In 2015 a grand total of 255 new Swift nest places was achieved (120 internal and 135 external) , among them is the "Swift-Hotel" with 40 nest sites in Frankfurt-Heddernheim, which was set up on the tower of an old air raid shelter from World War II.

DRAŠKO GRUJIĆ & MARKO TUCAKOV:

A survey of numbers and breeding sites of Common Swift (*Apus apus*) in Novi Sad, Serbia

The Common Swift is a regular breeder in lowland parts of Serbia. Despite very obvious breeding possibilities, it only breeds in a small number of sites in Central and Eastern parts of the country. The survey was executed by Draško Grujić (who co-ordinated the survey each year), Magdalena Grahovac, Saša Rajkov and Marko Šćiban.

Serbian survey
In a previous survey from Serbia, the estimate of the total number of breeding pairs is 7410-7830 pairs (Puzović et al. 2016). It is known to breed in three types of breeding niches: 1. Man-made structures (residential buildings, castles, other historical monuments, bridges), 2. Loess* walls, 3. unused nests of House Martins (*Delichon urbica*)

Common Swift mapping in Novi Sad
The main goal was to map the distribution of breeding colonies of Common Swift within the city of Novi Sad and to gain an understanding of its breeding needs and ecology. The survey was executed within the breeding season between 20 May and 20 June in the years 2012 - 2015.

Breeding sites were located on the basis of existing knowledge and the territorial activities of breeding birds. The study area was totally surveyed by foot to register breeding flocks circling between 6:00 and 9:00 am around places at roof level or in gaps between the buildings. We recorded only groups larger than 20 birds.

The project was financed by the City of Novi Sad's Department for Environmental Protection.

Results
Table 1: Breeding sites (number of pairs) of colonies of Common Swift (Apus apus) in residential areas with high buildings in Novi Sad between 2012 and 2015

Location	Year			
	2012	2013	2014	2015
Poljoprivredni fakultet (Trg Dostiteja Obradovića 8)	25	28	21	29
Bulevar oslobođenja – Novosadskog sajma ("Aleksandar")	23	26	20	27
Jaše Tomića blok 19, 33, 35	27	29	22	27
Gagarinova 3	23	24	19	23
Omladinskog pokreta – Jaše Tomića	32	33	25	31
Iza hotela "Novi Sad"	31	34	25	33
SPENS - početak Radničke	21	19	17	20
Ignjata Pavlasa 3	26	30	21	27
Katolička porta – Trg slobode	97	89	80	92
Sonje Marinković – pasaž do Radničke	27	25	22	24

Početak Jovana Đorđevića	23	25	19	26
Riblja pijaca	24	34	20	29
Filipa Filipovića 12-24	58	63	49	55
Felegi Tivadara 1	37	40	30	41
Kralja Petra I – Bulevar Oslobođenja	32	35	27	32
Iza Merkatora – Podgorička 27	28	26	23	29
Janka Čmelika 77 i 79	25	27	25	25
Katarine Ivanović 6-8	62	65	58	59
Milenka Grčića 7-29	137	146	117	131
Nadežde Petrović	145	158	122	148
Rumenačka 127-129	48	55	40	49
Orlovića Pavla 39-41	35	34	29	30
Stevana Divina Babe 6-14	67	74	60	69
Teodora Kračuna 6 i 8	28	29	24	27
Somborski bulevar – Adi Endrea	41	43	33	40
Total	1122	1191	948	1123

In 2014 (a year with an extremely high level of rainfall) the number of territorial birds was far smaller than in each of the other years. In 2015 (a year with an extremely low level of rainfall) the number of territorial birds was significantly larger than in 2014.

Breeding sites
Most of the colony sites were situated between the 5th and 6th floor of the buildings, 10-15 m above the ground. The nest sites were between the wall and the roof with access to the attic, or in small chambers below the roof, cervices and gaps in the facade, or in ornaments or similar structures on the face of facades. The buildings were of the following types: communal buildings and blocks of communal buildings, mostly built between 1960 and 1980. We recognised that Common Swifts avoided new buildings (especially the very large number of buildings constructed after 2000) mainly because of the lack of breeding holes and the very firm structure of the walls and roofs.

*Loess is aeolian sediment formed by the accumulation of wind-blowed silt

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LYNDA HUXLEY:

Common Swift (*Apus apus*) conservation in County Mayo, Republic of Ireland

County Mayo is located on the West coast of Ireland on the edge of the Atlantic Ocean, at the westernmost range of the Common Swift. It is the 3rd largest county in this country (5,586 km²) with about 130,000 inhabitants. It is mostly rural, the dominant form of agriculture being sheep

and cattle rearing, with no large industry. There are lots of lakes, rivers and bogs (peatland) and thus abundance of insects, especially midges, very good food for Common Swifts. There is some pollution in the lakes and rivers mostly due to run off from the land, following the spreading of slurry (liquid cattle manure generated by keeping cattle in doors for around 5 months during the winter) and the application of chemical fertilisers to promote grass growth. This nutrient rich run-off has affected the quality of the water in the lakes and rivers and changed the insect life over the past 15 years, resulting in fewer May fly but an increase in smaller insects, chironomids, which are good food for Common Swift. There is minimal spraying of insecticides as there is little crop growing.

In the last 20 years there has been a steep decline in Common Swift numbers in Ireland and in County Mayo, probably by around 45%. There are only just over 200 breeding pairs for the whole of the county. The main reason for decline in County Mayo is not, I believe, lack of food but loss of nest sites. From about 1995 to 2008 Ireland experienced the "Celtic Tiger years" which saw a period of rapid economic growth and a massive boom in the construction industry. This resulted in large scale demolishing and renovation of old buildings. A period when undoubtedly many traditional Common Swift nest sites were lost. In 2009 the Irish economy crashed and we have since had a few years of reprieve with a slump in the construction industry. This window of opportunity has been used to carry out a variety of Common Swift research and conservation actions in County Mayo to try to firstly stabilise the breeding population and secondly to help the breeding population increase:

- installation of nest boxes in 16 locations (with more planned for 2016);
- research into how feeding frequency is affected by weather conditions using live-streaming recordings from 12 nest boxes at GMIT (College in Castlebar);
- comprehensive nest site survey of every town in County Mayo and mapping of exact location of Common Swift nest sites using photographs and co-ordinates for GIS mapping;
- showing people how to identify Common Swift nest sites and recording them for the survey reports;
- collaborating with Mayo County Council - inputting of survey data for their GIS planning system and architectural/planning office;
- collaborating with Mayo County Council on protection of existing nest sites;
- creation of Swift Conservation Mayo group;
- website with nest distribution maps for each town in Mayo www.swiftconservation.ie, plus advice and other information;
- promote public awareness, e.g. public and school talks.

The county survey has highlighted that many of the buildings that house Common Swift nest sites are:
• in Public ownership (as opposed to private ownership): around 30%;
• built in the 18th and 19th century: around 60%;
• Protected Structures, registered with National Inventory of Architectural Heritage;
• stone buildings rather than rendered buildings.

In order to secure and grow this small Swift breeding population in County Mayo, and indeed in other Counties in Ireland, I believe that the combination of actions I have described is essential. The Irish economy is now starting to grow, and construction work is taking off, so we now need to be vigilant and proactive to ensure the future of the Common Swift in the West of Ireland.

MARCEL S. JACQUAT:

Ringing versus geolocators: a new quarrel between Ancient and Modern?

In our earlier Swift seminars (Berlin I (2010) and II (2012), Cambridge 2014), we had more than once heard about the ringing of our favourite birds. They are strong opinions for and against ringing Common Swifts, either at the juvenile stage or as adults.
I hereby share my experiences with animals seized carefully at the nest and also, more rarely, in a care station.

I started bird ringing in 1968, working mainly with Japanese nets and capturing passerines with this method. However, I have dedicated myself over the last decade to the Common Swift , through the control of artificial colonies or colonies with a mixture of natural and manmade breeding possibilities.

Ringing Common Swifts
Since 2004, I have had the opportunity to ring 2410 Common Swifts, of which only 204 were adults (8.5%).
My determination to create as little disturbance as possible has led me to control the colonies only once, late in the season, avoiding the problem of having to visit twice if birds were insufficiently large for ringing. The colonies that I control are situated in areas between 900 and 1065 meters above sea level, with one exception, the "Georgy's colony" Glovelier (505 m a.s.l), that was presented during the Seminar in Berlin in 2012.

What ringing can bring?
1. Knowledge of age (the year of hatching).

2. Evaluation of the age in days of every juvenile by measurement of the wing-length and observation of the evolution of the feathers.

3. Assessment of the quality of diet, according to weight. Indirectly, a conclusion on the favourability of particular breeding seasons is possible, as there are large differences from one colony to the other with the same wing dimensions.

4. Knowledge on hatching place: how many nest boxes are occupied each year.
This information can serve the cause of conservation. For instance, the City Council of Tramelan has taken the decision to protect the colony which is in the school.

5. Continuation of ringing is possible on an artificial nesting site for subsequent years.

6. Genton's technique (Genton 2014) with colour ringing is allowing control of birds returning to the same colony, with the age of minimum 10 months, without putting on a supplementary ring.

7. Anodizing (electrolytic passivation process used to increase the thickness and to colour the natural oxide layer on the surface of aluminium) S rings of the Swiss Ornithological Institute (SOI), each year with another colour, Bernard Genton obtains very interesting results by intensive photographic control and in that way evidence of returning birds to the colony without any disturbance.

8. Ringing enables intervention with a large number of juveniles and, eventually, adults simultaneously.

For instance, in
- Glovelier, on Georgy's colony there are 97 nest boxes, out of which more than 70 are occupied (checked during 4 years 2011-2014)
- Tramelan, school: 30 nest boxes, 12 to 23 occupied (during 12 years, until 2015)
- Les Breuleux, Joly's colony: 27 nest boxes, 16 to 24 occupied (during 11 years, until 2015)

Possible problems that ringing can cause
1. A damage could be possible in the nest if the control of the colony occurs too early in the season just a few days after hatching. However, I have no field evidence about this since I have not done ringing so early.

2. The Swiss Ornithological Institute has often asked ringers to focus their efforts on adults as well as chicks. This would suggest that adults are fixed at their site (strong fidelity to the site!), and that they would not be bothered by ringers' interventions.

3. Inconvenience could be caused to the brood during subsequent inspections, undertaken because of growth retardation. The development of chicks in a colony does not happen synchronously which sometimes requires additional checking on some nest boxes.

4. Hasty departure of juveniles during late interventions (after 38th day after hatching). When the chicks are ready or almost ready to fly, there is a risk that they will fly away during intervention.

5. Difficulties with control of adults outside of the nest

What about geolocators?
1. Relatively expensive technique, but likely to result in a larger amount of information and interest about duration, direction and speed of migration.

2. I am convinced that use of geolocators is an important step for increasing knowledge of migration and displacement of the Common Swift, but I do not think that it will replace ringing, for the reasons outlined above.

FRANCISCO JAVIER,
on behalf of Francisco Javier and Foro Geobiosfera:

Are things getting better for Swifts in Segovia?

1. The PEAHIS (special plan for the historical areas) which sets out guidelines for the preservation and promotion of biodiversity in the city of Segovia has been approved. This document includes some recommendations of Foro Geobiosfera.

2. There are several buildings under restoration (buildings belonging to the government of the town) where our recommendations have been put into effect. This means that Choughs, Kestrels

and Swifts havenot disappeared after the completion of the works, but there are more nesting opportunities.

3. The board of the Alcazar of Segovia (emblematic building belonging to the army) have approved the implementation of the Foro Geobiosfera recommendations to promote the nesting places for Swifts, as well as the Chough, Kestrel and Barn Owl.

The work is in progress and concerns mainly the wall defenses that surround the Alcazar area, which covers the castle, the pharmacy and the gardens.

4. We have further conducted actions in several churches to promote and preserve nesting places for the Swifts, Choughs, Kestrels and Barn Owls.

However, the restoration work in many churches and private buildings has, unfortunately, resulted in the plugging and destruction of holes suitable for nesting birds, even though these actions are forbidden by law.

GERT DE JONG:

Census of Common Swift in the city of Amsterdam. How bad is it?

A census of Swift nesting sites was carried out in the old centre of Amsterdam in 2013, in the area of the 19th century development ring in 2014, and in the area that was built up in 1920 - 1940 in 2015. This project was an assignment from the City of Amsterdam with the aim of registring addresses with nest sites, to improve conservation and better implementation of the Flora and fauna Law of 2002 in relation to the Common Swift.

Nest entrances and sites were identified by surveys on bicycle and on foot, by listening and observing in-flying Swifts, but also by noting faecal traces under nest entrances, and by listening to adult and young birds on the nest. All areas were visited at least once in each of three periods, May, June and July. The methodology was adjusted according to the stage in the breeding season.

1427 nest sites have been registered so far, with population densities roughly between 0.5 in the centre, 0.7 in the 19th century ring area, and 0.35 nests/ha in the area built up between 1920-40. This is not yet a comprehensive estimate of the total population size.

The most popular type of nest entrance identified was situated between the top roof tile and the ridge board on a typical 19th century rooftype (40 % of all nests, but up to 70% in 19th century ring areas). Nest entrances were also identified in soffits under gutters (mostly next to down pipes), and next to dormers in the 1920-40 ring area. Roof tiles in general were still important, with around 65 % of nest sites associated with roof tiles, but this was decreasing due to the renovation of roofs and the replacement of roof cover (old tiles for new unsuitable tiles, bitumen or zinc-roofs).

The succes of nest boxes and other measures, mostly undertaken by the Swift Task Force Amsterdam which has been active since 1993, were evaluated: overal 6.5 % of the breeding was

in nest boxes, especially 'integrated' nestboxes in walls and gutters had relatively high occupation rates.

The study has been compared with one undertaken in 1973 and the results suggest a negative trend of 75% in 19th century ring areas over the last 40 years. However, breeding numbers in post-war areas (expanding in area) have increased over the last 40 years. A retrospective model suggests a decrease of around 50% for the population of Swifts in Amsterdam, since the 1970s. Post-war areas were surveyed in 2016

LYNDON KEARSLEY,
on behalf of Lyndon Kearsley, Dick Newell, Fu Jianping, Zhao Xinru, Wu Lan, Terry Townsend, Susanne Åkesson, Philippe Helsen, Liu Yang, Chris Hewson:

The Beijing Swift Project

Context
Annual migration of Common Swift Apus a. pekinensis (Swinhoe 1870) from an annually monitored study colony in the Summer Palace Heritage Site, Beijing, NE China.

Objectives
Do Beijing Swifts also winter in South Africa? Our objectives were to answer this basic question, comprehensively map the full annual migration and to model broad-scale factors driving these strategies. The Beijing colony presented an opportunity to bring a high profile focus on the unique lifestyle of this impressive little bird with a view to conserving its breeding habitat in China's modern urban development and the need for conservation in general in Asia.

Methods
We used W65 light level data loggers, geolocators (GLS), from Migrate Technology Ltd. to track breeding adult Common Swifts from 2014–2015. 31 GLS units were attached to birds breeding in the Kuoru Ting Pavillion in the Summer Palace grounds, Beijing in May 2014. The building was surrounded using 8 purpose-made mist nets placed during the night and the departing adults were trapped at dawn. In preference known previously ringed breeding adults were used as candidates. Full biometric measurements were taken along with feather samples for DNA and isotope analysis.
In spring 2015, 13 adults (11 males and 2 females) were recaptured. GLS placement, harness fitting and possible chafing were vetted before downloading the data in situ using a novel technique. After a data check, the units were restarted and all thirteen birds released still wearing their original GLS in order to repeat the experiment for another season. A further 25 geolocators were deployed on new candidates. Wing photographs to study molt were taken for Lund University and blood samples and greater covert feather samples were taken for further DNA analysis.

Results
All 13 geolocators gave complete data sets for the full migratory cycle enabling departure and arrival dates, routes, major stopovers and wintering areas to be established. A new route across Central Asia to the North of the Tibetan Plateau and Tien Shan Range was discovered.
The importance of both the African Equatorial region and the migration connectivity within Apus apus came as was a surprise.

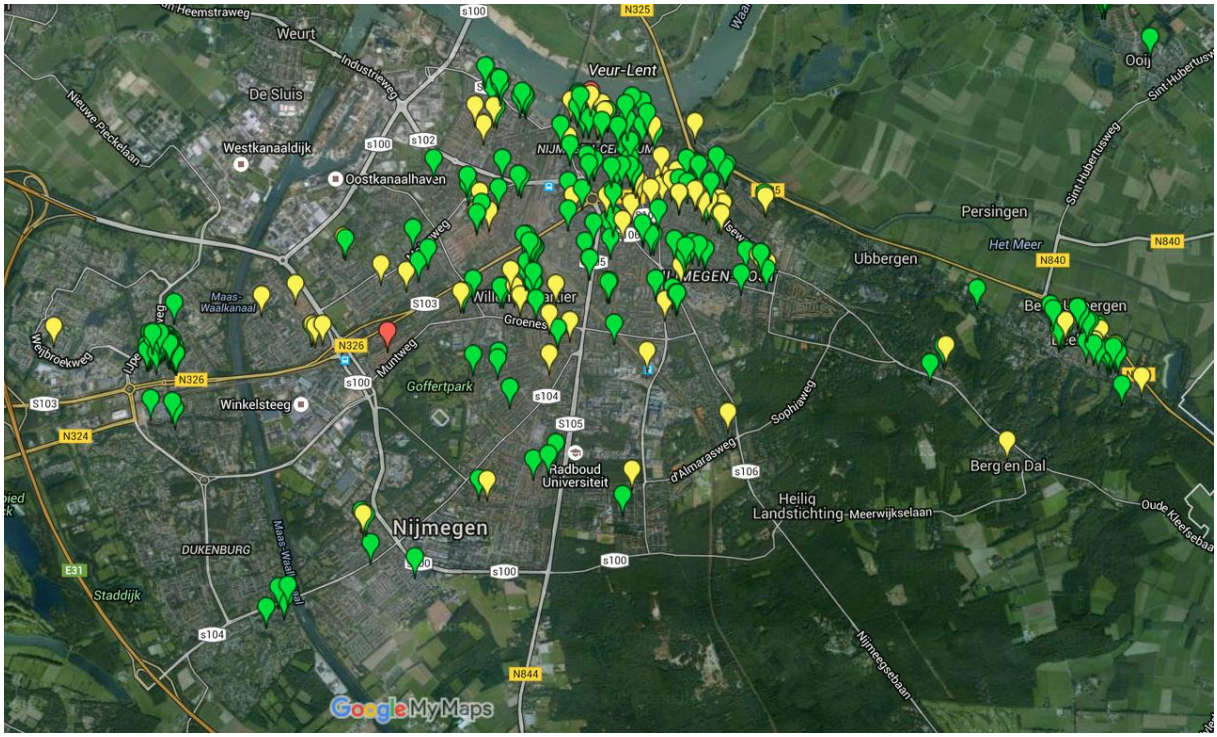
The wintering grounds of all 13 birds were located within the Kalahari and Namib deserts.

Conclusions
It is accepted that the Commons Swift remains in free flight for the whole of the period away from the breeding site. We found nothing to contradict this. In that case the migration documented is to date the longest flight of any land bird so far documented.

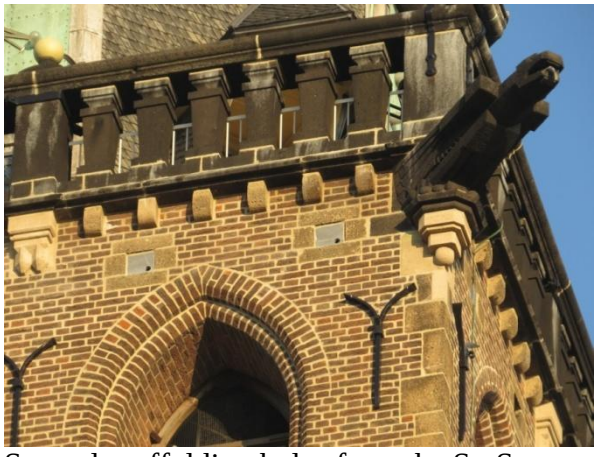
JOCHEM KÜHNEN:

Creating nesting opportunities in Nijmegen

I have been involved in conservation activities for Common Swifts and some other city birds



Map showing known nesting places of Common Swifts in the city of Nijmegen and the village of Beek (on the right).
ever since a renovation took place in a building near my home in 2008. My work for Swifts is focused on creating nesting opportunities in new building projects of which some examples are presented in the lecture.



Several scaffolding holes from the St. Stevenschurch in Nijmegen city centre were converted to nesting opportunities for Common Swifts by placing fronts made of flagstone and backsides of wood.

At several projects in Nijmegen internal nest boxes were installed.

The model shown above disappears behind masonry, if needed using bricks that were cut in half lengthwise. Openings are rectangles 35 mm high and 65 mm wide or square 50 x 50 mm. Round 50 mm is also possible, but has not yet been used in the city of Nijmegen as far as I know.

In the Project Hessenberg in Nijmegen city centre 21 nest boxes were incorporated during construction in 2009. At another project 40 nest boxes were incorporated in 2013 (Project Plein 1944). At one project just outside the city centre (Waterkwartier) so-called visible nest bricks were used. These boxes were used in spring 2013 by about 5 couples of House Sparrows (*Passer domesticus*). In 2014 the first Swifts were seen entering one of the boxes.

In all the above mentioned projects where Swifts have found the nest boxes, they have done so without the use of attraction calls.

In my experience, architects and project developers are most willing to cooperate when approached face to face and using an enthusiastic story about Swifts and how easy they can be helped. Costs are hardly ever a problem, unless the project concerns building houses for the

private sector. In this case nest boxes are often offered on a list for additional work (like extra wall sockets and the like), which would be ok, if not for the exorbitant costs charged (often around 200 Euro per box). In these cases no boxes are realized and I don't put any effort into trying to get people enthusiastic.

Sometimes architects themselves are enthusiastic though, as was the case in Project Nimbus near Nijmegen's central train station. 100 Nest boxes were incorporated into the North facade. The building was finished in 2016.

ELENA MARKITANI,
on behalf of BirdLife Cyprus:

The Swift project in Cyprus

Three species of Swifts can be found in Cyprus, all summer visitors to breed: the Common Swift *Apus Apus* with the most up-to-date population estimated at 15,000 – 60,000 pairs, the Alpine Swift *Tachymarptis melba* with the most up-to-date population estimated at 200 – 500 pairs and the Pallid Swift *Apus pallidus* with the most up-to-date population estimated at 200 – 1,000 pairs. All these Swift species arrive in Cyprus in March and have gone by late July, though we then get passage birds until September. The population trend in Cyprus for the Alpine Swift and the Pallid Swift is unknown, however, for the Common Swift the population trend for 2006 – 2014 is showing a steep decline between 25 - 75% (analysis with TRIM). BirdLife Cyprus has started a pilot project with funding from the Tasso Leventis Conservation Foundation and in collaboration with SPNI (BirdLife in Israel) to help Swifts in Cyprus. The project's main actions are the creation of nest boxes and their installation in specific areas, ideal for Swifts, as well as raising awareness among the public. Nest boxes have already been placed on the buildings of the Municipality of Aradippou and the Community Council of Voroklini as well as at the elementary schools of these two communities. As more conservation actions are planned for this species, BirdLife Cyprus aims to secure funding to expand the project beyond the first pilot year in order to involve more municipalities and communities and engage the public to get to know and protect Swifts.

CHRISTOPH MEIER,
on behalf of Christoph Meier, Hakan Karaardıç, Raül Aymí, Strahil G. Peev, Erich Bächler, Roger Weber, and Felix Liechti:

All roads lead to Africa: the diversity in migration trajectories of European Alpine Swifts

Geolocators (light level archival tags) have made it possible to describe the full geographic range of the Common Swift (*Apus apus*) and Alpine Swift (*Apus melba*) for the entire year. However, to date, only few routes for a couple of individuals from a limited number of breeding sites have been published. It thus remains unknown how much variation in migratory behaviour of swifts we can expect. We compared the journeys of 55 Alpine Swifts from four different countries across Europe with a novel multi-sensor geolocator from which we also derived their activity pattern and flight altitude. We found a divide in non-breeding sites between eastern and western European birds. The majority of birds from Taragona, Spain, Baden and Lenzburg, Switzerland

migrated to the Guinea Mountain in West Africa and a few individuals also flew to Togo Mountain. The majority of birds from Sofia, Bulgaria and from Antalya, Turkey migrated to South Sudan and a few individuals flew to Chad. Birds from Spain and Turkey departed later to Africa and returned earlier in Spring and spent in total about a month more time at the breeding colony compared to the Northern population. Flight altitude data confirmed that Alpine Swifts do indeed remain airborne for nearly the entire non-breeding phase. Flight altitude showed no clear seasonal pattern but during Autumn and Spring migration there was a tendency towards some high flight altitude. The highest flight altitude measured was 5100 metres above sea level for an Alpine Swift from Bulgaria while crossing the Sahara. The wing flapping intensity was highest during migration and peaked twice per day at sunrise and sunset. These activity peaks at twilight coincided with an ascent of approximately 300m during the non-breeding phase in Africa but not elsewhere. This suggests that twilight ascents have a different purpose then mere orientation of the birds during migration. Our study has demonstrated the value of using a multi-sensor geolocator for year-round observation of the behaviour of an airborne species.

DICK NEWELL:

How many Swift boxes are needed in the UK?

The presentation looks at estimates of the rate of decline of Swifts in the UK, as well as estimates of the population size. From these the number of nest sites lost each year is estimated. Losses due to other factors than nest site destruction are not considered.

The Breeding Bird Survey (BBS) shows that since 1995, Swifts have had an overall decline of at least 3% per annum, more recently nearer 4%.
The paper also uses BirdTrack data, with an empirical analysis to show a very similar result for the overall UK rate of decline since 2005.
Although the rate of decline might indicate that Swifts should be on the Red List of birds of conservation concern, neither data set has been running for long enough (25 years) for Swifts to be put in this category, so it is Amber-listed.

BirdTrack data indicates a higher rate of decline in Scotland and Ireland than the figures derived from BBS

Two methods are used to estimate the population size in the UK, first that of the Avian Population Estimates Panel in 2009 and also an extrapolation from 7 local detailed surveys. The APEP estimate was 87,000 pairs whereas the local survey extrapolation produced an estimate possibly as high as 170,000 pairs. This implies that between 2,600 and 6,800 pairs are lost every year.

A simple model shows that if 5000 nest boxes, with an occupancy rate of 25%, were installed every year, then the decline would be reversed in about 2035 and the population would then start to increase. This date could be brought forward should more nest boxes be installed annually.

The paper has 3 conclusions:
Large amounts of unstructured data can be useful
Swifts are as vulnerable as some Red-listed species
The building industry needs to incorporate cavities in their developments

DICK NEWELL:

Swift nest boxing developments in Cambridge

Action for Swifts (AfS) took over from Concern for Swifts (England) in 2007. AfS is a group of volunteers operating mostly in the Cambridge area. We maintain a blog, actionforswifts.blogspot.com that documents ideas, designs and case studies. We regularly give advice to people on Swift nest boxing projects.

AfS has implemented over 70 nest boxing projects, mostly in Cambridgeshire, having installed over 1200 nest boxes.

We pioneered swift boxes in church belfries with a high success rate. We developed the Cambridge Swift box system, provided design ideas to manufacturers such as Manthorpe and CJ Birdfood.

We developed the Cheng Sheng attraction kit, which has been a game changer.

The Cambridge International Swift Conference that we organized in 2014 resulted in a step change in Swift nest boxing activity in the UK with the creation of the Swifts Local Network (SLN).

Our projects in church belfries have resulted in over 120 new pairs of Swifts in 15 belfries. Most of these colonies continue to grow from year to year.

In 2007 we provided a design to a local manufacturer, John Stimpson, based upon the Dutch Zeist box. A further design was provided in 2014 for exposed positions and, to date [2017], over 10,000 Swift boxes have been manufactured and distributed throughout the UK and some in Europe.

Our designs have been adopted in places as far afield as Tashkent.

We have been involved in the construction of a number of Swift Towers, largest of which is the Cambridge Swift Tower. So far, progress is slow in getting Swifts to occupy these structures.

[AfS was given a Marsh Award for Innovative Ornithology in 2016.]

The results of our experiences can be summarized as

- Occupancy rates of >25% of boxes and of >50% of projects can be achieved in a small number of years

- Churches are a good opportunity

- Internal boxes are very successful

- Swift towers make a powerful statement, but are yet to be a proven concept

- Attraction calls and mitigation boxes give higher success rates

- Nest concaves are a good idea, swifts prefer boxes with them

- The technology exists for a large deployment of Swift boxes to be achievable in new build

- Small groups can make a difference

GRZEGORZ OLOŚ:

Influence of urban bird species on Common Swifts biology and behaviour

House Sparrow (Passer domesticus) and Common Kestrel (Falco tinnunculus) are one of the main urban birds species which interact with Common Swifts (Apus apus). This interaction is rather negative for Swifts, although some positive effects may also occur. Studies and observations were carried out in Opole, SW Poland at estate made of blocks of flats and serial houses in 2013-2015.

In case of House Sparrows my studies were focused on two aspects: Competition fo available nesting sites and creating nesting sites by House Sparrows. Both, Sparrows and Swifts decline in numbers in Poland and one of the main reasons of this tendency is lack of nesting sites. In Opole, were I conducted my observations, more than 90% of the nesting sites for these two species are located in polystyrene insulating layer underneath windows stills and rooftops. During years 2013-2015 House Sparrows created 6 new nesting sites by picking out polystyrene from thin gapes where other nesting sites are located. One out of six, made in 2013 was later occupied by Swifts in 2015. For these nesting sites which were created earlier (or were made by inaccuracy of workers who put insulation, or both) there is strong competition. If a nesting site is occupied by Swifts it shall not be occupied by Sparrows, and vice versa. Strong negative correlation was found between occupation of nesting sites by both of these species with $R=-0,901$, $p<0,01$ (Pearson correlation coefficient) on April-July period on 2013-2015. Surprisingly some of the nesting holes are ignored by one or both species being occupied whether by Swifts or Sparrows or by none of them. I found no, or very weak correlation between occupied and not occupied nests sites during breeding seasons on April-July 2013-2015. These are nesting sites suitable only for one of the studied species. They may stay unoccupied for much of the season being out of interest of Swifts or Sparrows. My conclusions on influence of House Sparrows on Common Swifts are: In Opole both species compete for available nesting sites.

- The earlier the Swifts return, the easier to find an anoccupied nest,

- House Sparrows create new nesting sites by picking out polystyrene from thermo-isulating layer,

- Swifts seem to be able to retake nesting sites previously occupied by House Sparrows or/and some of nesting sites made by House Sparrows become unsuitable for themslevs but suitable for Swifts,

- Number of nests occupied by Swifts may also depend on non-breeders activity, as some of adults were hunt by Kestrels, yet later nests become occupied once again,

- Possible infanticide by House Sparrows against Swifts needs to be investigated with inside camera recordings as Sparrows were observed inside Swifts nests.

In case of Common Kesterl my studies were focused on two aspects: praying on adult swifts and anti-predator behaviour developing by Swifts. As Swifts are common element of Kestrels diet being at the same time agile and fast-rising flyers to avoid and outmaneuver Kestrels the question is raised how they become a pray? I observed more than 30 cases of Kestrels attacks on Swifts of which ambush while Swift was getting inside nesting site was the most often (76,3% of all attacks) and most successful (55,2% of success). Attempts to catch Swifts in flight were second by frequency (13,2% of all attacks), but the most unsuccessful (20% of success). The last way of praying on Swifts was by reaching out of previously observed nesting sites (10,5% of all attacks) and was also successful (50% of success). Swifts, being a colonial species, is not totally defenseless due to anti-predator behaviour developing. One of its aspects was studied by me using sound records of Common Kestrel. Whenever observed Swifts has seen a Kestrel approaching they rised up, created a flock and took a safe position just after and above flying predator. When a Kestrel flew away or sit Swifts got back to normal flight. Rising up (and automatically break in nesting site activity) might be however provoked by playing Common Kestrels sound. I played sound of Common Kestrel 10 times in July 2015 once per day for 5 seconds with 1 day break between playing on evenings when number of birds flying in area was higher than 10. Change in arithmetic mean of flying birds in studied area (as not higher than up to 10m above top of 4th floor builidns) was from 21,5 birds before playing the sound to 4 birds just after playing the sound, with value of t test=13,44 with $p< 0,001$. Birds returned to normal flight after few minutes passed since playing Kestrels sounds. May conclusions on two studied aspects of influence of Common Kestrel on behaviour and biology of Common Swifts are:

- The most frequent way of hunting Swifts by Kestrels is by attacking them at the nesting site

- When Kestrel appears (visual or sound record) Swifts rise up to seek safety in open air

- Attacks on flying Swifts is the less successful way of Kestrels hunting

- It is very possible that when the whole flock of Swifts react to Kestrel appearance other birds are alerted as well

- Probably all-together rising up and flocking above and behind of the flying Kestrel is a response to more frequent hunting attempts made by this bird of pray on Swifts than it is stated.

GIORGIO PAESANI:

In the balance: the future of Calafuria's Pallid

A colony in a tower

The Pallid Swift's (Apus pallidus) colony in the Tower of Calafuria (Torre di Calafuria) was discovered by me in 2000 and I have studied it for nine years.

During those years a maximum of 52 active nests was recorded, and more than 150 Pallid Swifts were seen inside the cavities.
The colony is one of a "network" of colonies, most of them situated around the harbor of Livorno, with some others along the rocky coastline south of the city.
Built in the sixteenth century in order to protect the traffic by sea from pirate attacks, the tower of Calafuria is 29 meters high with a square base. The roof, rebuilt after the Second World War, is equipped with a walkway supported by ten arches on each side. Inside these arches the Pallid Swifts have built their nests with a maximum of three nests per cavity.
It is one of ten watch towers built along the coast. Almost all of them were destroyed during the war or after. Some were reconstructed. The tower of Calafuria is the only one to retain its orginal features well preserved, at least until today.

The particulars of the nest

The nests are glued to the vertical wall with saliva. Some of them are positioned in a corner glued on to two walls, but many others are attached to the wall by a few centimeters. However they can still support the weight of two adults and two or three fully grown nestlings.

In a watch tower called “Il Torrione” (the big tower) at Piombino, 90 km south of Livorno, which is very similar to the tower of Calafuria, I found an hanging nest in a much more narrow cavity. In these situations, the Swifts enter and leave their nests in vertical flight, often touching or tapping the walls with the tips of their wings.

In september 2006 two nests fell down from the Torre di Calafuria and I was able to examine the materials from which they were made. I found leaves of herbaceous plants, leaves of trees and leaves of Posidonia oceanica (a marine plant whose leaves, when dried, are extremely volatile), small pieces of lightweight plastic material, feathers (Seagull, Common Starling, Jay, small passerines). These nests, made of light material glued with saliva, are extremely durable and hard to break. In fact, they bear the weight of two adults and up to two fully grown nestlings.

A winter house

In November 2002, I discovered that some Pallid Swifts were using their nest in the tower as a roost.

I started a monthly monitoring counting the Swifts returning at dusk, or illuminating the nests at night for a few seconds to avoid waking the birds and forcing their flight. That led me to discover the northernmost case of wintering of this species in Europe. In February 2003 the number of Swifts suddenly increased. Was it a case of a very early migration or were they wintering somewhere else?

The birds that were counted during the night were consistently more numerous than those seen entering at dusk. This means that some entered the cavities long after sunset.
But how can they do that? In the four winter months of the period 1961-1990 the average minimum temperature was 5.4 °C, the frost days were four, and the prevailing winds blew from the northeast. But the Tower of Calafuria is sheltered from these winds!
In a radius of thirty kilometers from the colony, there is a mosaic of different environments, all exploitable by Swifts for feeding. The islands of the Tuscan Archipelago themselves are not so far away, and there other insectivorous species such as Crag Martin wintering there.
Because of material falling from the roof, the access to the tower is currently forbidden. In fact, the tower is in a state of neglect. An important association for the protection of cultural heritage has applied for management.

PIOTR PILICZEWSKI:

Common Swift ringing – is it still neccesary?

In days where geolocators and GPS loggers are in almost common use, the necessity of ringing is often questioned. This is especially true for species like Common Swift (*Apus apus*), with very little foreign recoveries.

Yet, ringing enables us to mark uninvasively and cheaply a very large number of birds for their entire life. A swift – it provides very little recoveries away from its nesting place – can be recovered reliably at the nest until its death, at least if proper handling methods are going to be used. This had already proven useful and had shown us the extreme site fidelity and also relative longevity. Geolocators and rings are enabling us to peek through different windows in the swift's life. None can eliminate another and indeed none is „better".

There are still things that we need to know about Swifts and some of them are essential for proper protection measures. Age structure of a colony and its determinants, colony size effect, the reason behind nest fights, determinants of breeding success, the effect of breeding disruption during thermoinsulation and the effect of insulation material on birds – those are only a few things to be studied. For all those studies the Swifts need to be handled and marked.

Capture of adult birds for marking in nest boxes is potentially risky and often discouraged. Swifts are deceptively calm but prone to desertion of eggs and even young chicks. I tested a method where the birds with chicks older than 3 weeks are handled at night and the nest entrance is blocked for up to 30 minutes after the birds calm up. This method yielded good results – about 10 pairs were ringed and none deserted. One needs to remember that the data from such a small number is anecdotal and the stress response can be varied between populations and even individually. It can be even linked to handling methods of a particular person.

It is most fruitful in potential data to trap adult Swifts along with the chicks in nestboxes. However adults can be also mist netted near the colony. Mist netting on feeding grounds can be risky because Swifts fly low most often in bad weather. It is not going to bring a lot of data as well. Ringing migrant Swifts is of very little use and should be avoided.

Ringing/recovering should be systematic. Ringing in several colonies and abandoning them is of almost no worth. It would be better to work on even a much smaller number of birds but year after year. This way we gather data systematically from the same birds. It is often said that by handling birds we disturb them. It is true. However the disturbance by researchers is often minimalized and with no long-term effects for the animal. It leads us to unravel the mysteries of their life. Those data may prove neccesary in devising the best methods of protection. Researchers can „leave the birds alone" – but people who are ignoring the need of protecting animals aren't going to. To protect the birds properly we need knowledge and firm arguments. Those aren't going to be gathered without proper study. Time comes when the Swift may be seen only in custom-made nesting places more and more. Those need to be devised in the best way in the Swift's point of view, not ours.

In Poland a ringing program for monitoring Swifts is starting. We also plan to start a country-wide survey customized for this species. The one that swift is included in at present time is ill-suited for this species' ecology and may not be providing accurate results.

REBECCA PITMAN & STEPHANIE MORREN,
on behalf of the Royal Society for the Protection of Birds, RSPB:

RSPB Swift Cities: Working together to give swifts a home in the UK

The RSPB's (Royal Society for the Protection of Birds) Birds Without Borders programme aims to work with partners along the African-Eurasian flyway to address the threats facing long-distance migrant birds. We need to undertake research and work with others to develop initiatives that will protect, restore and create habitats across the flyway. Common Swift is one of three priority species for this programme and a top priority for the RSPB in the UK.
Via the new Swift Cities project, the RSPB aims to launch a number of swift-friendly cities throughout the UK to halt and reverse the decline of Common Swift. This will be achieved through a partnership approach of: working with local swift groups, planners, developers and businesses to protect and create nest sites for swifts in new builds and refurbishments; encouraging monitoring of swift nest sites through citizen science; educating the public about the plight of swifts and empowering people to feel they can make a difference for the species.

It woud be good to know what exactly activities have been undertaken so far.

KLAUS ROGGEL:

In and outside the nestbox, close-up photos and videos of the Common Swift

The photo and video documentation of my Common Swift colony in Berlin has the following topics:

1. Introduction
2. Development of the Swift colony since 2001
3. The first self-made nesting boxes
4. New nesting boxes to enable internal viewing
5. Bolus, inspection
6. First breeding success
7. Home visits - Close-up pictures of Swifts
8. Parasites
9. Aerial mating
10. Flying Swifts in slow motion, video
11. Flying skills of the Swifts (aerobatic manoeuvres)
12. Approaching Swift in super slow motion
13. Behaviour outside the nesting box - photos and videos
14. Sound: Swift calls - taken with the Tascam sound recorder
15. Movie of my Swift colony 2013 (TV channel rbb)

Foto Klaus Roggel

TONIO SCHAUB,
on behalf of Tonio Schaub, Peter J. Meffert & Gerald Kerth:

What affects the occupancy rate of nest-boxes for Common Swifts Apus apus on renovated buildings? - Results from a study in north-eastern Germany

Currently, renovation and thermal insulation of buildings is happening at a high rate in many parts of Europe, driven by the political aim to reduce energy consumption and greenhouse-gas emissions. Unfortunately, building renovations often lead to a loss of structures on which synanthropic animal species such as the Common Swift Apus apus depend. To compensate for this reduction in the availability of breeding sites, it is a common practice in many countries to install nest-boxes for Swifts. However, little empirical information on the efficacy of such measures is available to date.
During summer 2013, we monitored the occupancy of 477 compensatory nest-boxes for Swifts, predominantly placed on renovated prefabricated buildings, in the city of Greifswald, north-eastern Germany. We found 24.3% of the boxes occupied by Swifts. The number of occupied boxes was higher than the assumed number of breeding sites prior to renovation. Furthermore, in a district where all buildings had been renovated in the past 10 years, we recorded a remarkably high density of Swifts breeding in nest-boxes (at least 68 occupied breeding sites on 20 ha). Using boosted regression trees, we analysed whether eight nest-box properties influenced the boxes' occupation probability. Unexpectedly, the modelled occupation probability strongly increased with decreasing number of close neighbouring boxes (box interspace less than 1m; 9.0% occupation probability for boxes with 8-14 neighbours, 40.0% for boxes without neighbours). In addition, Swifts apparently preferred boxes close to the roof edge (20.7% vs. 13.1% for lower boxes) and boxes placed higher than 11m above the ground (ca. 20% vs. ca. 16% for lower boxes). Externally mounted boxes were occupied with a higher probability than boxes integrated in the thermal insulation of the buildings (23.9% vs. 18.6%). Furthermore, boxes on north-facing facades had a higher occupation probability than those oriented to other directions, but the difference to the south-facing ones was only slight (N: 23.5%, E: 17.6%, S: 20.5%, W: 17.6%). Besides these results, we detected a marked difference relating to the city district in which the boxes were situated (32.0%, 19.0% and 17.7% in three different districts), as well as a difference relating to box age, with older boxes tending to have a higher occupation probability. Between different nest-box types, we found only negligible differences.
Our findings suggest that installing nest-boxes is likely to be an appropriate measure to compensate for nesting sites of Swifts lost during building renovations. Based on our results, we primarily recommend mounting the boxes a few metres apart from each other and close to the house's roof edge to maximise success. Further studies should be carried out to assess whether our results and conclusions can be confirmed in other situations.

KATJA SCHMIEDER:

The Common Swift in Literature and Culture

With reference to Charles Foster's talk at the International Swift Seminar in 2014, representations of this bird can be traced in different texts, ranging from scientific/scholarly articles to fictional prose, poetry, and blogs. The "linking function" of the Common Swift is especially interesting; it not only figures as a truly interdisciplinary animal when bridging the

realms of science and the imagination, it also reconciles contradictory human ideas and conditions.

In the German poem "Mauersegler" (Eva Strittmatter, 1983), the bird symbolises the opposite of freedom and restlessness, both of which derive from the scientific fact of being "footless" - apus. Similarly, the Common Swifts in the poems by Polish author Adam Zagajewski ("Mauersegler stürmen die Katharinenkirche," 2012) and British writer Trevor James ("Devil Birds"), represent contradictory themes like hope v. fear, peace v. unrest, body v. soul.

The bird's characteristics, such as constant motion and an "airborne" life, have also impressed ornithologists, meteorologists, and aviation technicians ever since. The language they use to describe the Common Swift employs superlatives and other words indicating uniqueness. Scientific texts (e.g., Videler, 2005), scholarly articles (e.g., Dokter, 2013) and non-fiction works (e.g., Turner, 2011) on Swifts use apparently "un-scientific" expressions like "extreme" "remarkable" "fascinating" or "extraordinary."

So it seems that scientific texts employ poetic language and literary/narrative strategies, while poetry and prose elaborate on the most intriguing scientific facts about the Common Swift. Both realms are thus embedded in culture, both are connected by the spectacular and "extreme" characteristics this bird encapsulates and represents, and both assume an important meaning-making function for the bird in people's lives.

MARCIN SIUCHNO:

Factors determining the use of artificial nesting sites by Swifts *Apus apus* in the SMB Osiedle Kabaty housing estate in Warsaw

In 2015 I undertook a study of the factors determining the use of artificial breeding sites for Swifts, Apus apus, .
There are 322 nest boxes on the facades of the building "SMB Osiedle Kabaty" housing estate in Warsaw. They were erected between 2009 and 2013.

In 2015 I made a controlled study of which nest boxes were occupied and which were not.

148 out of 322 nest boxes were in use. The main factors determining use were
the height of the boxes and the time which had elapsed since their installation.

I found that the nest site exposition of the boxes had no influence on their attractiveness.

Also the position of the particular building within the housing estate had not proved to have any impact.

The ease of access to the nesting boxes appeared to play a secondary role. The research method did not confirm that the presence of nests in the boxes or nesting material had had an effect on the attractiveness of the nest boxes.

JESÚS SOLANA RAMOS:

Wintering Pallid Swifts (*Apus pallidus*) in Alange (Spain) in the winters between 2009 and 2015

Some Pallid Swifts over -wintered in Alange (SW Spain) between 2009-2010 and 2014-2015. Between nine and fifteen birds were detected flying over the village in the early days of 2010 and in January 2011.

In November 2011 a bird was seen entering in a hole in the church's facade.

Periodic visits were made to Alange each winter in an attempt to ascertain the status of these Swifts from 2011-2012 to 2015-2016. In the first season, the time of visit was 15 minutes each side of dusk. In the following years, waiting times were increased to 30 minutes each side of dusk.

The minimum control dates were arranged from before December until February 15th . During this period it's quite likely that migratory Pallid Swifts were also present .

The number of birds that have remained throughout the winter has varied each year and is shown in the following table.

Winters	2011-2012	2102-2103	2103-2014	2014-2015	2015-2016
N.º of wintering swifts	8	2	1	8	0

The roosting holes used by the birds were identified and each entry was recorded. More than 75% of the records are for birds that have shared the hole with a partner.

Recording the Pallid Swifts' use of the holes has been possible in three of the five periods. The same holes were in use throughout the whole period. Use of the holes is also quite predictable within each season, especially in the most central period of the winter (mid-December to mid-January), although sometimes a certain dispersion of use of the holes can be seen, especially in extreme wintering dates.

MIKE TARBURTON:

Swifts From The Land Down Under

There is just one Swiftlet breeding in Australia and two swifts that winter therein. The larger is the White-throated Needletail *Hirundapus caudacutus.* It is characterised by a white throat, and juveniles lack the white nares & have dark striations on the vent and under-tail coverts. They weigh 54-154g, have a wing length of 184-220 mm, and a wing span of 433-532 mm. They use two pairs of opposing toes for perching in a vertical position.

In Australia they occupy the wetter east coast between the tip of Cape York and Kangaroo Island. They drink from open bodies of fresh water, opening their mouths just prior to imbibing and closing them soon after. Feeding on insects has a similar sequence of opening just before encountering the prey.

High Speed photography is also useful in determining the progress of moult (Sept –Jan) and capturing a range of wing shapes.

Average flock size has declined each decade since 1950 from 164 to 42 (Tarburton 2014). The main cause appears to be the excessive (mainly illegal) logging of the Siberian forests, where the majority of birds breed in tree and stump hollows. Clear felling techniques remove these nest sites. It would be worth experimenting to see if man-made nests erected in Siberia would reduce the decline. A secondary and more recent cause for Needletail deaths is collision with wind turbines (Hull *et al* 2013.). Switching to Polar-types and rotor-blade types that have sheeting between the blades, would eliminate such deaths.

Radio-tracking a bird for two weeks has shown they do roost but do not go directly to their roost sites and do not start flying to the site until an hour after sunset (Tarburton 1993). A natural enemy the Barking Owl, has been found to take its prey just after it lands to roost. Needletails have been seen to outfly Peregrine Falcons attempting to pursue them.

Pairs of birds help to cement their pair-bond by engaging in co-ordinated display flights at high altitudes, once their crops are full. The pair comes together leaving 20 cm to 2 m between their wing tips and perform twists, turns, loops and barrel-rolls, while maintaining the distance chosen for that performance. As Lyuleeva (1991) suggests it is as though they are tied together by an invisible string, and it is a breath-taking experience to watch particularly as sometimes they end with a high-speed descent from 1,000 -1,900m to 30-300m, reaching speeds well in excess of 200 km/hr, and pulling up just above the canopy of Australian eucalypts.

The second Swift is the Pacific Swift *Apus pacificus*. Which comes from a wider expanse of breeding territory. Their numbers are not significantly declining because they breed on rock faces that are not being harvested to any great extent. In fact the largest flock (estimate of 215,000) was estimated by about 8 people in this decade (2012).

This bird comes to Australia by a range of routes, with large flocks having been recorded at Khao Dinsor in southern Thailand and on the south coast of New Guinea. Once in Australia they move over the whole continent in an unpredictable manner, which with many birds staying in SE Asia, makes them difficult to locate in the short term.

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MICHAEL TARBURTON:

Swiftlets Under Down Under. The Australian Swiftlet Aerodramus spodiopygius

The so-called oldest swift fossil "Scanish Swift" from Hesse, Germany, fits modern Swiftlet measurements. The Australian Swiftlet *Aerodramus spodiopygius* was previously considered the western-most form of the White-rumped Swiftlet . I still believe it is closely related as the western form with the whitest rump, with the rump darkening as you move east through the Solomon Islands, New Caledonia, Vanuatu, Fiji, Tonga, Samoa, and even links with the bird in the Cook Islands, then Tahiti and the Marquesas.

The Australian Swiftlet is divided into two sub-species: *A. t. terraereginae* along the coast, and *A. t. chillagoensis* further inland. Coastal colonies are mostly under rock boulders in creeks, with a few in old mine shafts, and populations fluctuate in response to predation and flooding. Inland colonies are mostly in limestone caves. They may have 2-6 entrances or just one. Some limestone is smooth but some is very jagged, making access difficult. Best way to locate nesting caves is to sit down and watch where the birds go underground. Swiftlets choose high smooth overhanging surfaces on which to attach their nests. Such sites prevent land-based predators from reaching them. They are mostly in total dark sections of the cave and so some predators, such as owls, are deterred by that.

The introduced domestic cat is the worst predator of a bird that concentrates its nesting under one rock overhang or through one cave entrance (Tarburton 1988). Snakes have little influence, presumably because they are cold blooded. Nests are made of Kangaroo Grass (*Themeda australis*) and saliva. Clutch contains one egg. Development is slow: incubation takes 25-29 days and fledging averages 46 days in a good season and 52 days in a poor season (Tarburton 1988a, b). Their tiny brain houses important information that makes good out of the climate extremes occurring in Australia.

I had manipulated clutch and brood size in Fiji to determine if they were producing the maximum brood they could feed, and found they were (Tarburton 1987, 1993). Then I learned that the Australian birds only laid one egg, yet they were largely in savannah country and should have been producing more than the two that Fijian birds in rainforest habitat produced. Biologists know that looking at exceptions to the rules often helps understand more about what drives the rules, so I re-ran my manipulation experiments in North Queensland. Six days a week I checked the eggs and weighed and measured the manipulated nestlings in two caves. It was learned that Australian Swiftlets could hatch two eggs but could not simultaneously find enough food for two young. One always died even in the good season. After a few weeks I discovered that eggs appeared under the nestlings once they had become homiothermic and grown feathers. These eggs hatched the day after the sibling that incubated them fledged. This unique strategy allows these swiftlets to raise close to two young each year.

As apparently do many swiftlets, the Australian Swiftlet moults during the wet season and while breeding (Tarburton 1988). You can find many books that still say birds do not do this.

There are 600 tagged caves in the Chillagoe area and many more, further north, so we are still finding new ones and new breeding colonies. Going into these caves can be difficult and exciting, but what one finds down there makes it worthwhile. I have only seen *Scutigera* on Norfolk Island and in Chillagoe caves. Brown Tree Snakes and Children's Pythons inhabit the caves and feed on swiftlets near the entrance or in low or narrow sections of passage. Being

cold-blooded, reptiles theydo not need to eat many swiftlets to survive. In addition, they appear to set up a territory and keep other snakes out. The Upper colony at Golgotha Cave has had a python sleeping in the narrow section of the passage just before the swiftlet colony nearly every time I have censused that cave, and its faecal pellets often contained swiftlet feathers, but the colony has continued to grow throughout that time. In pre-european times there might have been a mammalian predator the Quoll, that took some birds as I have found two old skulls not far from where the python lives. Ghost bats can eat a lot of swiftlets, but they for some unknown reason are rare. Feather piles have been to date always attributable to introduced cats. They have drastically reduced populations in a short time, but because the last few birds are difficult to catch, they look for food elsewhere, and leave the 10-20 remaining birds to re-build the colony. These swiftlets host Hippoboscid flies *Myophthiria spp.* (Maa 1980).

The most recent factor reducing populations is a huge leap in rainfall caused by a La Niña event that floods the caves and nests (Tarburton 2011, 2013). Rainfall data since 1902 show that twice the monthly average fell only once up to 2006. But it happened each year from 2007 to 2012, causing five colonies to be eliminated. Over the following three years each of these colonies was re-settled and are increasing. By the third year of excessive rainfall, some colonies commenced breeding three months early – even though the Bureau of Meteorology was predicting an El Niño year. The birds turned out to be correct that year and the following year, with the Meteorology Office suddenly changing to predict a La Niña season.

Working with these birds, one realises they are full of tricks, and are wonderfully designed flying machines. I have timed them entering small cave entrances at up to 111 km/h, then in the twilight I realised they were flying faster than that. Yet these birds can hover inside the caves. In all caves they have to accommodate rushing from the bright tropical sun into darkness and then in some they have to do a right angled turn through a small aperture just large enough for them. Graham Anderson, a Queensland bird photographer, caught some of the unbelievable manoeuvrers that these birds make with new high speed flash and camera.

It has been claimed that because Australian Swiftlets were on migration if they are not in their breeding caves during winter(Pecotich 1974). If one either, waits till dark you will see the birds enter to roost, or if you check the guano pile for white spots you will know they are still roosting there each night. The white nitrogenous spots disappear 1-2 weeks after they are deposited.

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OLLE TENOW:

Testing Common Swifts with flying dummies

Swifts and cetaceans (whales, dolphins, porpoises), although belonging to very different animal groups, has one important trait in common: they live both in non-supporting elements, air and water. Therefore, individuals that cannot fly or swim will succumb. In cetaceans an epimeletic (care-giving) behavior has evolved that has been described to occur in three phases of increasing intensity: (1) standing by, i.e., for some reason (e.g. welcoming) one member of the group escorts an individual side by side for a while, (2) if an individual shows stress, members respond by circling vividly around the stressed individual and by that express excitement and, (3) if beginning to sink, one or two members support the individual from below to keep it up. Observations on Common Swifts (Tenow et al. 2008) motivate the hypothesis that swifts have evolved a similar behavior. This hypothesis should be testable by eliciting the same behavior in swifts with advanced flying dummies (in my tests "Bionic Bird") and film the behavior. A video (R. Malmborg 2015) that was prepared for the Seminars is in Appendix 2. You will see how three swifts from the very beginning one after the other target the dummy (01 sec, 03 sec and 06 sec, respectively, from the start of the video) and some seconds later (11 sec) how a resident swift shout out from my summer-house behind my back and first (seemingly) target the dummy and then swings to the left. Thereafter (12 – 40 sec) the dummy ascends and is approached by members of the colony even when the dummy drops to the ground.

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JUDITH WAKELAM:

Some experiences of rehabilitating Swifts in an English village

Since my first experience of successfully hand rearing a Swift chick in 2002 I have taken in and reared small numbers of Swifts every year since. Being in a rural area this can involve a lot of driving to collect them. Swifts arrive from the general public, websites and local Veterinary practices. Although numbers are not high, usually between 25 and 40 my success rate has been good. In 2014 I had my only 100 % success with all 26 of 26 Swift chicks reared and released. In 2015 I lost three of 30 chicks.

Fed on a strict insectivorous diet of waxworms, black crickets, mealworms and live insects from the garden plus vitamin and calcium supplements the chicks do well with release weights of between 37 and 48 grams. I always ensure every sheath is gone from every feather before release.

Sadly some Swifts arrive having been previously fed inappropriately by their finder. When possible I supply local veterinary practices with Eric Fusté's findings on the dangers of wrong feeding to Swifts.

I also get a small number of adult birds, usually in early May, most require no more than overnight rest and rehydration although I do sometimes encounter injuries, if the cause is not obvious I seek veterinary advice.

As I have over the past three years had camera nest boxes on the outside and in the loft of my property with breeding Swifts in them I am considering in 2016 introducing an extra chick of the same age into a nest to see if the pair would rear it. Should there be any problems I will be able to very quickly retrieve the chick

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MARTINE WAUTERS:

Swifts Without Frontiers

Though its breeding sites in the Northern Hemisphere are vital for its survival, the Common Swift spends 9 months per year in Africa, where deforestation, pesticides and hunting can be a threat for it, but the "friends of the Swifts network" has had very few contacts in the Southern Hemisphere. Swifts Without Frontiers is aimed at better promoting Swift conservation via transcontinental projects associating youth groups across the Swifts' distribution range.

Field experience in a poor, culturally mixed area in Brussels has showed how transcontinental migrant birds like Swifts could help raising environment-awareness amongst communities of African origin, who are fascinated to learn how those birds travel every year between their home country and Europe.

Swift Without Frontiers is being developped in partnership with the Jane Goodall Institute (JGI), under the patronage of Dr. Jane Goodall. This organization has a long, successful experience in both hemispheres, including with scientists, as well as with its global "Roots & Shoots" (R&S) youth programme. As a global organization, JGI could support projects aimed at Common Swifts *(Apus apus)*, but also at other Swift species.

R&S is about bringing young people to act on 3 levels: Animals, People and the Environment (APE). By participating in Swift projects, R&S groups can work on these 3 levels, for instance:

- Animals: Helping protect Swift nesting places (by putting up nest boxes, but also by promoting "Swift-friendly" renovation and building techniques) they can be helpful to other animal species like sparrows, redstarts. Also, African children could take actions to protect termites, a vital food for Swifts in their Spring migration. Some termite species are also important for the environment and for people, as they are good polinizers.

- People: In Israel, the Swift is a "bird of peace" during the yearly "Swift Welcome Ceremony" at the Wailing Wall

- Environment: R&S groups already organize actions for the environment that can benefit Swifts, like planting trees or creating organic vegetable gardens (2 very popular R&S activities) : Such activities benefit insects, i.e. the Swift's food.

Also, the global-wide "JGI network" (R&S, but also scientists) can help "the Swift friends network" by:

- Spreading information about Swifts and how to protect them

- Gathering information about Swift colonies (using their long experience in citizen science)

- Organizing local nestbox projects and/or helping save colonies

- Sharing their long, successful experience in projects around the globe, including Africa.

Setting up a network:
Promising contacts have been established in both hemispheres, within the JGI network, but also within « the Swift network » and in other circles (esp. in Benin). If you already have a "Swift project" in your school or youth group, or a "Roots&Shoots" group, or a partnership with a school in Africa, you are welcome to share your experience & tools within this Swifts Without Frontiers network!

DOROTA ZIELIŃSKA,
on behalf of Dorota Zielińska and Adam Tarłowski:

Swift Towers in Warsaw

Introduction
Adam Tarłowski's company Ussuri, is a small nest box manufacturer. The Warsaw Society for Protecting Birds (STOP) is a small non-governmental organisation that protects birds, especially in the city of Warsaw. There are no employees at STOP, just a handful of volunteers. We educate people about birds and nature (children and adults, officials, police officers etc.), organise birdwatching tours in Warsaw and the environs, to popularise birds, birdwatching and nature protection. We do some activities aimed at protecting birds in buildings. In a big city the birds mostly nest in buildings. The biggest problem for these birds is the loss of nesting places. Modern architecture doesn't have places for birds like e.g. slots in elevation. Older buildings are renovated and after renovation there is no place for the birds. Many birds are killed during renovation projects, although they are protected by the law and are so useful for the residents as they eat a great many nuisance insects. Birds nesting in renovated buildings are the cause of a conflict between investors and people who want to protect birds. A decline in the populations of birds, like Common Swift or House Sparrow, has been reported across Europe. In many European regions these birds are almost extinct.

Protection of birds in buildings. How to achieve this?
People from NGOs often think that the most important thing we can do for the Swifts is to take

emergency action to prevent Swifts from being walled alive during building renovation. Many scientists and naturalists think we can protect birds only with nest boxes, surveys, conferences, meetings with officials and lectures. Practitioners think the most important activity is carrying out an ornithological census prior to starting building renovation works. We do interventions, lectures, bird censuses in buildings, education and hang nest boxes – and we can see it's not enough. The survival of birds in buildings depends primarily on millions of ordinary people, local residents. There are so many buildings and so many residents. To protect the Swift and other species in buildings everybody has to know about the animals and like the animals. How to achieve this?

What is a Swift tower for?
A piece of architecture just for Swifts is one of the ways to do something for the protection of Swifts. So we planned to build towers for the Common Swift. It is possible to build Swift towers in green areas and on estates. We want to protect birds by educating people, building places for birds, and attracting the attention of the media for the Swifts and other birds in buildings. The tower shouldn't be seen as "an expensive alternative to nest boxes" but as a Swift embassy which draws attention and promotes Swifts. In order to protect the Swift, we have to make millions of people know and love Swifts. We cannot make people know and love Swifts without TV and other media. Only with TV can we say to everybody: there are birds in buildings, humans need them and have to protect them. We have no money for TV programmes – one such programme is much more expensive than even the biggest Swift tower.

A good example and an inspiration from the USA
A small town in the USA has a big structure - a metal tower for birds (Purple Martins). Griggsville is proud of these birds and everybody in the town wants to have nest boxes, a small "house" or "tower" for the Purple Martins because they make them happy. The town is well known in the world because of the bird, and for the people of Grigsville who love and protect their birds. Grigsville can have its bird so why can't Warsaw love and protect its own bird: the Common Swift.

The competition
The first step was the competition STOP made for the design of the Swift tower. It was held in 2011 with the President of Warsaw as honorary patron of the event. The Swifts are insectivorous and Warsaw authorities wanted the birds to help protect the city from various insects. There was no other prize in our competition (called in Polish *Wieża dla jerza*) than satisfaction for the winner, but STOP received tens of very interesting and varied designs.

Guidelines for Designing the Swift Towers
Basically, the guidelines in our competition were modelled on the Guidelines for Building Swift Towers, as developed by Commonswift Worldwide and FRIENDS OF THE SWIFTS R.A.. (Commonswift Worldwide & FRIENDS OF THE SWIFTS R.A. in http://www.commonswift.org/4951Tigges&Mayer.html). In brief our guidelines were as follows: A Swift tower should comprise two parts, the tower structure itself and the nest-box assembly, the design of which allows the birds easy access to a safe nesting site and also offers ornithologists a safe access to the nests for monitoring, maintenance purposes etc.

Nest-box assembly
The basic inner dimensions of each and every box should be 120 mm high, 180 mm broad and 300 mm long. The round entrance hole should be 50 mm in diameter (or oval 60x35 mm) and

placed some 50 mm above the nest box floor level. To enable human (ornithologist) access to each nesting place, the nest boxes should be fitted with access doors.

Tower structure

1. The tower should have a life of many years and have enough nest-boxes for at least more than a dozen pairs of birds.
2. The nest sites in the tower should be at least 6 metres above the ground.
3. Unauthorised access to the tower should be prevented. Vandalism needs to be deterred by the use of non-flammable materials, un-climbable surfaces and an attack resistant structure.
4. The nest sites in the tower should be sheltered from solar radiation, rain, wind etc. and be secured against predators, whether mammals or birds.
5. The tower design should be aesthetic; it could be like modern art, an urban sculpture or something very simple and easy to duplicate in many places. The tower should be fit for erecting in green or built-up areas.

The winners

There was one winning project and 6 other ones were awarded recognition in the competition.

Below are a few visualisations of the towers:

Pict. 1. The first prize went to architects Katarzyna Kruk and Dorota Flor. The tower had a multimedia element for educating people

Other designs which received recognition:

Pict. 2. Architect Rafał Pieszko, Menthol Architects – a natural architecture laboratory

Pict. 3. Architects: Patrycja Pyzalska, Mirosław Barcik, Aleksandra Grabara, Anna Bil, Anna Nowak Barcik. PRACOWNIA PROJEKTOWA FERO PP

The first Swift tower in Poland
Following the competition STOP started to look for an opportunity to build the first tower. It meant talking with many people, media, and companies. One of the local officials heard about Swift towers in the media and offered help with building the first tower. Money came from the local Warsaw government, STOP was just an adviser. The first Swift tower in Poland was built in Warsaw, in the district of Białołęka. The tower has 90 nesting places, its own electricity supply from solar panels to a mp3 player with calls of the Common Swift (so as to attract Swifts).

The first breeding season (2013)
At the end of the first breeding season in the first tower we found in several nest boxes located in the lowest rows, the feathers of tits, which apparently roosted there. There was also some grass but it was not known whether it was brought by Sparrows, Tree sparrows or Swifts. Not surprisingly, there were no traces of Swifts but the lack of any other species (Starlings, Tits) was strange - perhaps the front wall of the nest boxes in the tower was too thin and because of that it was avoided by the birds? We decided to do some modifications and Adam Tarłowski undertook these; some fronts of the boxes were repainted white, some made thicker and some holes were made round and bigger (47 mm).

The second and third breeding seasons (2014 and 2015)
At the end of the second breeding season (2014) we found traces of the Common Swift: two nests and a broken egg. Several boxes contained moss brought there by Tits. At the end of the third breeding season (2015), we found many traces of activity of the Common Swift. There

Pict. 4 and 5. The first Swift tower in Poland (Warsaw, Białołęka district) after modifications made in 2014 (photo Dorota Zielińska)

was nesting material in 18 nest boxes: single feathers and dandelions, sometimes glued, brought by the Swifts – in 10 nest boxes; a base nest - a lot of glued feathers but not a fully-formed cup in 1 nest box; an early-stage Swift nest glued to material brought by Tits and Starlings in 7 nest boxes. There were traces of Tit and Starling activity too: nesting material (not much) brought in by Tits in 5 nest boxes; Starling and Tit material mixed – in 8 nest boxes; material applied by Starlings (not much) in 10 nest boxes; a Starling nest with no sign of successful breeding (a lot of material, an almost ready nest) in 4 nest boxes; a Starling nest after hatching in 1 nest box. In one nest box there were birch leaves found - maybe brought in by a Flycatcher.

More Swift towers in the world and the Polish Swift tower calendar

The first tower in Warsaw (district: Białołęka) and the first one in Poland was built in 2012. In 2014 several projects for towers have been submitted to the ”participatory budget call” in Warsaw. One of them was the project of STOP: a Swift tower in the district of Praga Południe, Kamionek. In 2014 the local government in the Warsaw district of Wilanów erected two towers designed by the Zielona Góra University. In 2015/2016 two towers in the district of Praga Południe, Kamionek were built under the participatory budget. In Great Britain and Northern Ireland two Swift towers identical to the first Warsaw one, were built in Exeter and Belfast in 2015.

Many people and many towns now want to have a Swift tower. The media are interested in Swift towers and every year we are on TV and other media several times just because of the towers, and this gives us the opportunity to say something about the protection of birds nesting in buildings. People from across Poland keep asking STOP about the towers. More than 20 towers have been built in Poland since 2012. The towers were built in: Białystok, Gdańsk (2 towers), Kielce, Piła (4), Lublin, Puławy, Tarnobrzeg (2), Toruń (4), Zielona Góra (3?). Towers are planned for: Płock, Mielec, Elbląg. Towers are very often funded from participatory budgets,

Pict. 6. Two Swift towers in Warsaw, Praga Południe district - view from the side of solar panels

e.g.: in Warsaw, Zielona Gora, Lublin, Piła (4), as well as from other sources, e.g. in Gdansk (2 of them are financed by the Provincial Fund for the Environmental Protection (WFOŚiGW).

Jerzykownik, a Swift house

„Jerzykownik" is a kind of small Swift tower one can put anywhere and everywhere. It's smaller and much cheaper than the bigger, spectacular Swift towers. A big, metal Swift tower can cost 16000 euro, a small Swift house can cost only 1600 euro. It is designed and built by Adam Tarłowski from the Ussuri company. There are seven Swift houses of this kind in Warsaw and five of them in a small town near Warsaw. There are nest boxes for other birds too (Sparrows, Tits, Starlings), not only for Swifts.

Pict. 7. Jerzykownik = a Swift house (photo Adam Tarłowski)

List of the attendees

Adam Gatniejewski, Alice Meneguz, Amnonn Hahn, Andrew Leese, Andries Berghuis, Annie Moliere, Anselm von Prittwitz, Beata Lalik, Brian Cahalane, Carmen Muñoz, Charlotte Jacquat, Chiara Meneguz, Chris Baines, Christoph Meier, Dick Newell, Dorota Zielińska, Draško Grujić, Edmund Hoare, Effrosyni Parcharidou, Elena Abdullaeva, Elena Markitani, Elisa Pietribiasi, Elisabeth Grabow, Enric Fusté, Erich Kaiser, Evert Pellenkoft, Francisco Javier Sáez Frayssinet, Gabriela Dobruská, Georges Gonnet, Gert de Jong, Gertrud Kaiser, Giorgio Paesani, Götz Roder, Grzegorz Oloś, Helen Burke, Igor Fefelov, Ingolf Grabow, Jaap Haveman, Jan Holmgren, Jesús Solana, Jochem Kühnen, Judith Wakelam, Kalender Arikan, Karoliny Ptak, Katarzyna Szczypa, Katja Schmieder, Kazimierz Walasz, Klaus Roggel, Koen Wonders, Louis-Philippe Arnhem, Luit Buurma, Lynda Huxley, Lyndon Kearsley, Marcel Jacquat, Marcin Siuchno, Mariusz Grzeniewski, Marko Tucakov, Martine Wauters, Mary Noonan, Mauro Ferri, Michał Borun, Mícheál Casey, Mike Tarburton, Miranda Berghuis, Nerys Baines, Nikita Chernetsov, Ninon Ballerstädt, Olle Tenow, Peter Cush, Peter McAllister, Piotr Piliczewski,

Rebecca Pitman, Rainer Prodoehl, Rose-Marie Schulz, Seamus Feeney, Stefania D'Arpa, Stephanie Morren, Tanya Hoare, Tonio Schaub, Ulrich Tigges, Vic Froome, Zeynep Yasar Arikan, Zofia Brzozowska

Group photo 2016

Photo Judith Wakelam

With the participation of members from the following institutes: Ornithological Stations of Rybatchy (RUS) and Sempach (CH), Action for Swifts (UK), BirdLife Cyprus (CY), Centre de Recuperació de Fauna Salvatge de Torreferrussa a Barcelona / Torreferrussa Wildlife Rehabilitation Centre, Barcelona (E), Centro Ornitologico Toscano (COT) / Tuscan Ornithological Center (I), Česká společnost ornitologická (ČSO) / Czech Society for Ornitology (CZ), Δράση για την Άγρια Ζωή / Action for Wildlife, Thessaloniki (GR), Foro Geobiosfera / Geobiosphere Forum (E), Frankfurter Mauersegler-Initiative / Frankfurter Common Swift Initiative (D), Покрајински завод за заштиту природе / Institute for Nature Conservation of Vojvodina Province (SRB), Питомник по содержанию и передержке птиц с последующим выпуском в естественную среду обитания / The rescue centre for birds taken into the care for subsequent release into the wild (UZ), Royal Society for the Protection of Birds (RSPB) (UK), ידידי הסיסים / Friends of the Swifts (FOTS) (IL), Stowarzyszenie Stołeczne Towarzystwo Ochrony Ptaków (STOP) / Warsaw Society for Protecting Birds (PL), Universities of Ankara (Hacettepe) (TR), Greifswald (D), Irkutsk (RUS), Leipzig (D), Opole (PL), Palermo (I), Potsdam (D), Szczecin (PL)

Appendices

The attendees decided to meet next time in Tel Aviv, Israel.
The Swift Conference will take place in Tel Aviv from March 11th - 16th, 2018.

Ulrich Tigges read out a letter from Helmut Steiner. According to his researches on plucking, he found that some *Apus apus* young had not yet fully developed their feathers, and some of their feathers' protective sheaths of more than 10mm in length, were still present.

ZOFIA BRZOZOWSKA:

I have been rehabilitating wild birds and hand-rearing nestlings and fledglings for over 38 years now. This large part of my life has always given me much joy and satisfaction, but also clearly demonstrated the reality of the plight of wild birds in Poland.

I have witnessed a drastic increase in the number of birds coming to my little rehabilitation centre who are injured and have been deprived of nesting sites due to human cruelty, ignorance and indifference. I am terrified to note how the number of natural nesting sites has plunged; they are continually disappearing and without any adequate compensation in almost all cases.

Among the victims of the so-called 'progress and development' in Poland there are Swifts, once a common sight during the nesting season, today a very rapidly disappearing species from Poland's cities, towns and villages. Szczecin, the city where I live, is a shameful example of a place that has destroyed 90% of Swifts' nesting sites. How has this happened?

Insulation work performed on buildings routinely during the nesting season, making the nestlings starve and suffocate, killing adult Swifts or at best injuring them and scaring them away; unreliable ornithological inspection and so-called expert opinion allowing thermal insulation and construction to proceed to the grave detriment of wild birds, but to the delight of many profit-minded investors; and a lack or inadequacy of compensation for damaged nesting sites, are some of the main reasons.

The current population of Swifts in Szczecin is endangered, and so are their populations in other Polish cities and towns. Public awareness of the problem is still alarmingly low and there are very few experts in Poland who successfully rehabilitate injured Swifts and hand-rear nestlings.

Together with Ulrich Tigges I decided to organise this Swift Seminar in Szczecin, Poland, wishing that we could all share our considerable knowledge and experience for the benefit of Swift protection and conservation, which needs so much to be further promoted in Poland.

I do hope we'll keep our skies alive, preserve nesting sites, and enjoy the sight and sound of rejuvenated Swift populations in the nesting season again.

KATHERINE DUBOURG:

Some informations about Swift conservation in Toulon, France

There are three species of Swifts present in Toulon during the nesting period: the Common Swift, *Apus apus*, is the most common and nests all over the city; the Pallid Swift, *Apus pallidus*, is less common and nests in the structures of the old port buildings and the cliffs on the coast; and the Alpine Swift, *Apus melba*, which nests in the cliffs.

In the city, like almost everywhere else, during obligatory construction and building work which is conducted every 10 years to restore and rehabilitate historical buildings, no consideration is

given to the birds' needs. Nesting holes are routinely filled in which threatens the future of the species.
Therefore, LPO-PACA (Ligue pour la Protection des Oiseaux – Provence Alpes Côte d'Azur) and its local voluntary group in Toulon, decided to find a solution to protect and attach value to this emblematic species during the urban renovation work.
An ambitious project of urban rehabilitation of the historical centre has been in hand for several years. All the districts are renovated in successive tranches from simple restoration of facades to the demolition of whole blocks and construction of new buildings. And our concern, of course, is the disappearance of nesting sites for the Common Swift.
Fortunately, in the area of the destroyed ancient hospital of Chalucet, several new nest boxes for Swifts are now being installed by the urban community to promote the swifts. More construction work is planned. Just 8 nests occupied in 2015 were preserved.
After two years of establishing contacts and meetings, several programmes of the City Council have progressed from listening to beingcurious, and finally to being interested in the project: Sustainable Development, Durable City, Animal Protection, Urban Renovation and Var Installation Development, a mixed ownership company in charge of the rehabilitation of the old center of Toulon.

And as protection starts with knowledge, the idea to carry out a census of Toulon Common Swift nesting sites was realized through a participative campaign. As as result of the census 387 nests were found in 200 houses.

ENRIC FUSTÉ:

Hand-rearing protocoll (link)

OLLE TENOW:

Movie from R. Malmborg (2015) (link)

MARTINE WAUTERS:

If You Want To Help Swifts, Be Creative! (Workshop)

I've been developing a "Swift tool kit" (with my own and other people's ideas) to help young people participating in "Swift Without Frontiers". In my own experience, some of those tools have also proved to be very useful with adults, whether to make information stands more attractive or to be more convincing in negociating Swift projects with architects and authorities.

Were tested the following tools successfully during this participative, creative workshop:

- a realsize carboard Swift,

- a Swift mobile, and

- a board game, aimed at learning about a Swift's fascinating life.

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