Unusual pre-roosting behaviour of Barn Swallows *Hirundo rustica* during autumn migration

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The abnormal behaviour of a group of Barn Swallows roosting in a maize field is described in detail. Approximately 700 individuals forming a spherical flock performed spectacular manoeuvres over a maize field for several minutes. After sunset, individuals plunged vertically in small groups into the maize field in very fast flight. Observed behaviour agreed largely with previously reports, although some peculiarities were recorded such as an attempt to roost on sparsely grassed ground, attacks by Yellow Wagtails *Motacilla flava* on landing swallows and loud twittering during all the aerial manoeuvres. The bad weather conditions are the most likely cause for the roosting of these migrating individuals.

Key words: Barn Swallow, *Hirundo rustica*, roosting, behaviour, maize field, autumn migration, NE Spain

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Communal roosts are typical in the Barn Swallow *Hirundo rustica* outside the breeding season. In African wintering quarters, large numbers of Barn Swallows are found in a small number of roosting sites, in which thousands or even millions of birds congregate every evening (Vrijdagh 1951, de Bant 1962, Curry-Lindahl 1963, van den Brink *et al.* 1998, 2000, Deuzeman *et al.* 2004). These huge aggregations occur typically in reed-beds close to rivers and lakes (Verheyen 1952, de Bant 1962, Curry-Lindahl 1963, van den Brink *et al.* 2000, Nutall 2000; but see also Cramp 1988, Fry *et al.* 1988, Nutall 1998), where birds can forage nearby. This gregariousness also benefits individuals as a means of reducing predation risk (Bijlsma & van den Brink 2005). Roosts have been also reported in European breeding grounds, above all in late summer and autumn (Cramp 1988). In these cases, Barn Swallows have been recorded in different types of habitats (e.g. bracken, James 1995; reed-beds, Kose 1993) and also locations such as maize fields on several occasions (Ford & Elphick 1993, Lukac 1994, Spence 1995). These post-breeding roosts are thought to be associated with increased predation risk and/or bad weather conditions (Stagg 2005).

Here, the unusual behaviour of a roosting flock of Barn Swallows observed on 29 September 2005 is described in detail. The observation took place in an area of open ground of 40 ha named Pla de Can Morató, between the villages of Cardedeu and Sant Antoni de Vilamajor (Vallès Oriental; UTM 447-4610) at 210 m a.s.l. in NE Spain. The area is covered by a mosaic of crops, pastures and small patches of *Pinus pinea* woodland, all of which are surrounded by built-up areas and mixed forest. Most of the area was lying fallow at the time of observation and only a maize field of ca. 2 ha was still unharvested. These plants were approximately 1-1.5 m high. The observation took place in the evening between 18:50 h and 20:10 h in bad weather conditions, with a dense cover of dark clouds, intermittent gusts of wind and some rain between 18:55 and 19:05 h.

At 18:50 h, approximately 100 Barn Swallows appeared in the area and apparently began to forage near the ground (maximum 10 m high). When it started raining five minutes later, more individuals arrived from nearby built-up areas, increasing the number of individuals to ca. 200. When it stopped raining, all of the birds suddenly disappeared northwards. A few minutes later (19:10 h) a large number of birds (about 300) re-appeared. However, on this occasion, all of the birds were flying together in a compact flock that then proceeded to move northwards and southwards, performing spectacular manoeuvres over the fields of Pla de Can Morató. At 19:20 h most of the Barns Swallows began to land on open ground. A number of Yellow Wagtails *Motacilla flava*, which are regular visitors in small groups of 10-20 individuals to this area during both during spring and autumn passages, attacked the swallows that were attempting to land. Five minutes later all of the swallows took off and formed a compact flock that once again began to perform spectacular aerial movements over the fields. A single Sand Martin *Riparia riparia* was detected among swallows. At 19:35 h a strong wind from the north (4-5 on the Beaufort scale) dispersed the swallows, which disappeared for ten minutes. The sun set at around 19:40 h, but the swallows soon returned (19:45 h), forming a compact spherical flock, in which birds whirled very fast about 10 m high above the maize field. Unlike the flocks described previously, this group was very noisy. For a few minutes, many individuals arrived from different directions and joined the flock. Eventually, the flock totalled approximately 700 individuals and continued its perfectly synchronised high-speed spiral flight. At 19:55 h small groups of birds (about 20-50 individuals) began to plunge vertically into the maize field at great speed. By 20:00 h all birds were perched in the maize, concentrated in just a few plants in an area of around 30 m^2 in the middle of the field. An intense twittering continued for a few minutes. Some aggressive interaction between individuals was observed, which resulted in some individuals flying from one plant to another. After perching, all individuals began to preen. At 20:10 h the twittering began to fade and I left the area.

Similar incidents of birds on autumn migration roosting communally in a maize field have never been observed in the same place either before or subsequently: it was, thus, an isolated and exceptional incident, probably caused by adverse weather conditions (Stagg 2005). This fact could explain the differences between the observed behaviour, that is, the attempts to roost on open ground, the aggressive response by Yellow Wagtails and the aerial manoeuvres with much twittering, and the descriptions of roosting behaviour in Cramp (1988). However, the type of habitat used finally to roost in (Ford & Elphick 1993, Lukac 1994, Spence 1995) and the presence of Sand Martins (Cramp 1988) both agree with previous descriptions.

Resum

Comportament inusual d'un grup d'orenetes *Hirundo rustica* durant la migració de tardor abans d'ajocar-se

Es fa una descripció detallada del comportament d'un grup d'unes 700 orenetes vulgars abans d'ajocar-se en un camp de blat de moro. Van formar un estol de forma esfèrica i durant varis minuts van fer tota mena de vols sincronitzats força espectaculars per sobre de l'àrea on finalment van aturar-se. Després de la posta de sol, alguns individus van anar baixant en grups petits amb vols molt ràpids per anar a parar-se sobre les plantes de blat de moro. Els comportaments observats es corresponen en general amb el que ja es coneixia, tot i que es van observar alguns fets inèdits, com ara: un intent d'aturar-se al terra, l'atac de les cueretes grogues *Motacilla flava* durant aquest intent i el continu soroll dels individus durant tot el procés. Aquests individus en pas van haver d'aturar-se probablement a causa de les condicions meteorològiques adverses.

Resumen

Comportamiento inusual de un grupo de golondrinas comunes *Hirundo rustica* durante la migración de otoño antes de acceder al dormidero

Se hace una descripción detallada del comportamiento de un grupo de unas 700 golondrinas comunes antes de acceder a un dormidero situado en un campo de maíz. Formaron un bando esférico que durante varios minutos realizó todo tipo de vuelos sincronizados muy espectaculares por encima del área en la que finalmente se posaron. Después de la puesta de sol, algunos individuos fueron bajando en peque-

ños grupos mediante vuelos muy rápidos a posarse en las plantas del campo de maíz. Las observaciones corresponden en general con lo anteriormente descrito, pese a que se observaron algunos hechos inéditos: el intento de posarse en tierra, el ataque de lavanderas boyeras *Motacilla flava* durante dicho intento y el ruido continuo de los individuos durante todo el proceso. Las condiciones meteorológicas adversas probablemente fueron la causa de que estos individuos en paso se pararan.

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