

## Short Communication

# When Swallows postpone the south: first recorded November fledging of *Hirundo rustica* in Italy

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**Abstract** - The Barn Swallow (*Hirundo rustica*) is a long-distance migratory species whose breeding season in Europe occurs between March and August. However, on November 4<sup>th</sup>, 2024, a late breeding attempt was documented in Acquanegra sul Chiese (Mantua, Italy). The nest, containing four nestlings approximately seven days old, was located inside a rural farm building, suggesting that the first egg was likely laid around October 10-11<sup>th</sup>. The site was monitored through direct observations, camera trap footage, weather analysis, and dietary assessment. The collected data indicated that the internal temperature of the building was significantly higher than the external environment, which may have favored the success of the breeding attempt. Feeding activity peaked during the central hours of the day, and the diet was composed of insects from the following orders: Coleoptera, Hymenoptera, Lepidoptera, Heteroptera, Homoptera, and Diptera. Fledging occurred between November 19<sup>th</sup> and 20<sup>th</sup>, representing the latest known fledging record for the species in Italy and highlighting its remarkable phenological plasticity.

**Key words:** Barn Swallow, *Hirundo rustica*, late nesting, breeding ecology, Lombardy, Italy.

**Riassunto** - Quando le rondini rimandano il Sud: primo involo registrato a novembre di *Hirundo rustica* in Italia.

La rondine comune (*Hirundo rustica*) è una specie migratrice a lungo raggio, la cui stagione riproduttiva in Europa è generalmente compresa tra marzo e agosto. Tuttavia, il 4 novembre 2024 è stato documentato un tentativo di nidificazione tardiva ad Acquanegra sul Chiese (MN), Italia. Il nido, contenente quattro pulli di circa sette giorni, era collocato all'interno di una cascina agricola, suggerendo che il primo uovo sia stato probabilmente deposto intorno al 10-11 ottobre. Il sito è stato monitorato tramite osservazioni dirette, camera trap, analisi meteorologiche e alimen-

tari. I dati raccolti indicano una temperatura interna alla struttura significativamente più alta rispetto all'ambiente esterno, che potrebbe aver favorito il successo della nidificazione. I ritmi di alimentazione mostravano picchi nelle ore centrali del giorno, con una dieta costituita principalmente da insetti appartenenti agli ordini: Coleoptera, Hymenoptera, Lepidoptera, Heteroptera, Homoptera e Diptera. L'involo dei pulli è avvenuto tra il 19 e il 20 novembre, segnando il caso più tardivo noto di involo in Italia e la forte plasticità fenologica della specie.

**Parole chiave:** Rondine comune, *Hirundo rustica*, nidificazione tardiva, ecologia riproduttiva, Lombardia, Italia.

The Barn Swallow (*Hirundo rustica*) is a small insectivorous bird with a worldwide distribution. It breeds primarily in temperate regions and migrates to the tropics or the Southern Hemisphere to overwinter. The breeding season varies depending on the range; European populations are long-distance migrants wintering in sub-Saharan Africa. They exhibit a prolonged breeding period (March to August in southern Europe) (Cramp, 1988; Turner, 2006).

In Italy, the Barn Swallow is a common breeding species throughout the Peninsula, Sardinia, Sicily, and many offshore islands (Bricchetti & Fracasso, 2020; Lardelli *et al.*, 2022).

Egg-laying occurs between mid-March and August, peaking from late April to mid-May, with occasional broods in September-October. In northern Italy, breeding has been recorded between 5<sup>th</sup> April and 21<sup>st</sup> August (n=300), with first clutch peaks in early May, second broods in mid-June, and third broods in mid-July (Pazzucconi, 1997; Ambrosini *et al.*, 2006; Bricchetti & Fracasso, 2020; Romano *et al.*, 2025).

Although breeding in Europe typically occurs from March to August, late nesting, often considered third broods, is not uncommon in September. However, cases of egg-laying or fledging in October are rare, and no fledging events in November had previously been documented.

In England, third broods with fledging in October have been reported (Turner, 2006), notably on 29<sup>th</sup> October 1934 in Anglesey (Boyd, 1935), and on 22<sup>nd</sup> October 1935 in Cockerthorpe and Leicestershire (Boyd, 1936). Glutz von Blotzheim & Bauer (1985) also report October fledging cases in Switzerland and the Netherlands during the second half of the month. In Friesland, the Netherlands, nes-

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tlings have been repeatedly observed during the first 10 days of October in 1939, 1964, and 1951 (J. de Jong, pers. comm.). In Italy, the latest fledging previously known occurred on 20 October 1980 in Borgo San Giacomo (BS) (M. Caffi, pers. comm.).

On 4<sup>th</sup> November 2024, a nest containing four nestlings with an estimated age of 7 days, in accordance with Morales Fernaz *et al.* (2012), was found in Acquanegra sul Chiese (Mantua Province, Italy) (Fig. 1). Based on this information, the hatching likely occurred around 28<sup>th</sup> October. Based on indications from Turner (2006), the first egg was probably laid on 10-11<sup>th</sup> October 2024. The nest was located approximately 7 m above ground in the barn of a floricultural farm used as storage for agricultural machinery (45°08'57.7"N 10°26'44.6"E). The surrounding landscape is composed of agricultural land (87%), woodlands and semi-natural areas (8%), water bodies (4%), including the Oglio River, and anthropized areas (3%). Croplands include simple arable fields (50.76 ha), floricultural crops (20.33 ha), mixed herbaceous forage crops (13.33 ha), and poplar plantations (1.58 ha). Data were derived using QGIS v.3.16.15, within a 1 km<sup>2</sup> grid cell, following the methodological framework proposed by Evans (2001). The farm also houses domestic animals, including poultry and equines; a horse stable and two cattle barns are located nearby.

The nesting was monitored via nine visits from November to December, and a camera trap (iZEEKER 4K 30fps 48MP iG400 Camera) was installed near the nest from 7<sup>th</sup> to 21<sup>st</sup> November. This allowed for data collection on nest temperature, activity patterns, feeding frequency, behavior, and large prey items (Fig. 2). Meteorological data were obtained from the ARPA Lombardia weather station "ASOLA v. Industria", located approximately 9 km away. Fecal samples were collected to assess diet composition; after being washed, filtered, and sieved, they were examined to identify prey remains to the order level (Boukhemza-Zemmouri *et al.*, 2013).

On 7<sup>th</sup> November 2024, three adult individuals were observed feeding the nestlings. However, there was insuf-

ficient information to determine whether the third individual was a helper from a previous brood, an infrequent and rarely confirmed occurrence (Cramp, 1988; Turner, 2006), or an unrelated visitor with less altruistic motives (Turner, 2006), as it was seen only on that date.

The nesting period was marked by a gradual and steady temperature decline from mild conditions in October (15-22°C) to colder weather with frequent frosts in November (down to -1°C). Rainfall was low, with significant peaks in mid-October (up to 17.4 mm), followed by a dry period.

The hourly mean temperature, obtained by comparing the data collected via the camera trap and the weather station, inside the barn was significantly higher than outside, with a mean difference of  $2.1 \pm 0.2^\circ\text{C}$  ( $p < 0.0001$ ). Under colder conditions (external temperature  $< 5^\circ\text{C}$ ), the difference increased to  $3.1 \pm 0.4^\circ\text{C}$  ( $p < 0.0001$ ).

Activity patterns showed regular morning departures (08:50-10:00) and evening returns (16:00-16:49) by the adults, with feeding frequency peaking during midday hours (11:40-13:00), coinciding with warmer temperatures. On average, approximately 54 minutes elapsed between the adults leaving the nest and the first feeding visit.

Diet analysis identified prey items belonging to the following insect orders: Coleoptera, Hymenoptera, Lepidoptera, Heteroptera, Homoptera, and Diptera.

On 15<sup>th</sup> November 2024, the four nestlings present in the nest, by then fully feathered, were observed wing-flapping at the edge of the nest. On 19<sup>th</sup> November, one of the chicks was found dead inside the nest. On the same day, two fledging events were recorded: the first at 09:36 and the second at 11:16. Of the two fledglings, only one returned to the nest, while the other was later found dead a few meters away. The fourth and final nestling fledged at 13:15 on 20<sup>th</sup> November. Of the three nestlings that fledged, one was observed flying near the nest the following day, together with the adults, while the other was not seen again. The adults, however, were observed near the nest and foraging along the adjacent Oglio River on 7<sup>th</sup> and 12<sup>th</sup> December 2024.



Fig. 1 – Active nest observed in Acquanegra sul Chiese on 4<sup>th</sup> November 2024. / Nido attivo osservato ad Acquanegra sul Chiese il 4 novembre 2024.



Fig. 2 – Adult delivering food, captured by a camera trap positioned near the nest. / Adulto con imbeccata, ripreso dalla fototrappola posizionata nei pressi del nido.

The late breeding case documented in Acquaneira sul Chiese, the observation of an active nest in early November at the Oasi Sant’Alessio (Pavia Province; G. Salamon, H. Salamon, pers. comm.), and a recent record of an active nest with nestlings in Olhão, Portugal, on 1<sup>st</sup> January 2025 (J. Niesz, pers. comm.) provide further evidence of the Barn Swallow’s pronounced phenological plasticity, suggesting a broader tolerance to atypical environmental conditions.

Although based on isolated observations, such unusually delayed breeding cases may affect the timing of migratory departure and subsequent stages of the annual cycle, in light of the known sex-dependent carry-over effects on migratory phenology and reproduction documented in the species (Saino *et al.*, 2017).

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