

# First-year male Whinchat *Saxicola rubetra* with unusually extensive post-juvenile moult

Stephen Menzie, Marcel Gil-Velasco & Marc Illa

A first-year (EURING 3) male Whinchat *Saxicola rubetra* ringed at Falsterbo Bird Observatory, Sweden, showed unusually extensive post-juvenile moult. It had moulted most greater coverts, all secondaries and some inner primaries but had retained all tail feathers, tertials, alula feathers and primary coverts. A post-juvenile moult of this extent and pattern has never to our knowledge been previously documented in this species.

Key words: Whinchat, *Saxicola rubetra*, moult, Falsterbo, Sweden

Stephen Menzie\*, 24 Linkside Road, Liverpool, L25 9NY, United Kingdom.

Marcel Gil-Velasco, Dalt 1, 3r 2a, 08980 Sant Feliu de Llobregat, Spain.

Marc Illa, Ample 6, 08251 Santpedor, Spain.

\*Corresponding author: stephen.menzie@gmail.com

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Whinchats *Saxicola rubetra* can be tricky to age, as shown by the three full pages devoted to the species in the Svensson (1992) identification guide. First-year birds undergo a partial post-juvenile moult soon after fledging, which generally includes a variable number of median and sometimes greater coverts. Thus, first-year birds in autumn usually show a moult limit in the median and/or greater covers. They also have a pale lining to the upper mandible, visible in the hand by gently opening the bird's bill. Adult birds undergo a complete moult on their breeding grounds and thus in autumn show uniformly fresh plumage, as well as a dark lining to the upper mandible (Svensson 1992, Karlsson *et al.* 1993, Jenni & Winkler 1994, Urquhart & Bowley 2002). Differences exist in greater covert patterns between age classes, with first-years having a broader brown fringe to each feather than adults. In adult males in autumn, the brown fringe to the greater coverts can taper and all but disappear at the base of the feather (Karlsson *et al.* 1993, Jenni & Winkler 1994). Moulded wing coverts in first-year birds show an adult-type pattern. Sexing of first-year birds relies on

the contrast and sharpness of the pale area at the base of the tertial and tail feathers, which is sharply demarcated white in males but is a more ill-defined off-white in females (Svensson 1992, Karlsson *et al.* 1993), and the pattern and extent of white on any moulted inner greater coverts (Svensson 1992). A pre-breeding moult, not discussed in this manuscript, is undertaken on the wintering grounds (Jenni & Winkler 1994, Urquhart & Bowley 2002).

Here we first describe a Whinchat observed in autumn in Sweden with an unusually extensive post-juvenile moult, and then detail the moult pattern and briefly discuss how this bird could be aged.

## Materials and methods

At c. 07:00 CEST on 28 August 2014, a Whinchat was caught at Flommen reedbed, Skåne province, southern Sweden. It was trapped using 16 mm mesh-size mist-net as part of the standardised Falsterbo Bird Observatory autumn ringing campaign and ringed with metal ring Stockholm

CU52643. The bird was examined, sexed, aged, and its moult extension was recorded. Photographs were taken to further document the bird before it was released at Flommen reedbed (Figures S1–S3).

## Results

The bird was sexed as a male by the pattern on the tail, tertials and moulted inner greater coverts (Svensson 1992, Karlsson *et al.* 1993).

Examination of the bird showed that it had two generations of flight feathers. The moult extension was recorded by noting the moulted and unmoulted feathers (Figure 1, S2). The following is a descriptive assessment of the moult, with primaries (P) and primary coverts (PC) numbered in descending order, and secondaries (S) and greater coverts (GC) numbered in ascending order. The moult was symmetrical and feather growth complete (stage 5, Ginn & Melville 1983) unless otherwise stated:

- *Median and lesser coverts*: all moulted.
- *Greater coverts*: GC2–10 moulted, GC1 unmoulted.
- *Carpal covert, alula, primary coverts, tertials and tail*: all unmoulted. The tail exhibited fault barring consistent with simultaneous growth of the feather tract.
- *Primaries*: on left wing, P1–2 moulted and P3–10 unmoulted; on right wing, P1 moulted, P2–10 unmoulted.
- *Secondaries*: all moulted. On left wing, S6 growth stage 4; on right wing, S1 & 6 growth stage 4 (scored as per Ginn & Melville 1983).
- *Body feathers*: all moulted but with c.15% still growing.

The lining of the upper mandible was pale (Figure S3).

## Discussion

Having undergone a complete moult on their breeding grounds, adult Whinchats migrating through the Falsterbo peninsula in autumn show uniform freshly moulted plumage. Occasionally, an adult bird in September will have residual signs of the complete moult – typically the innermost secondary at growth

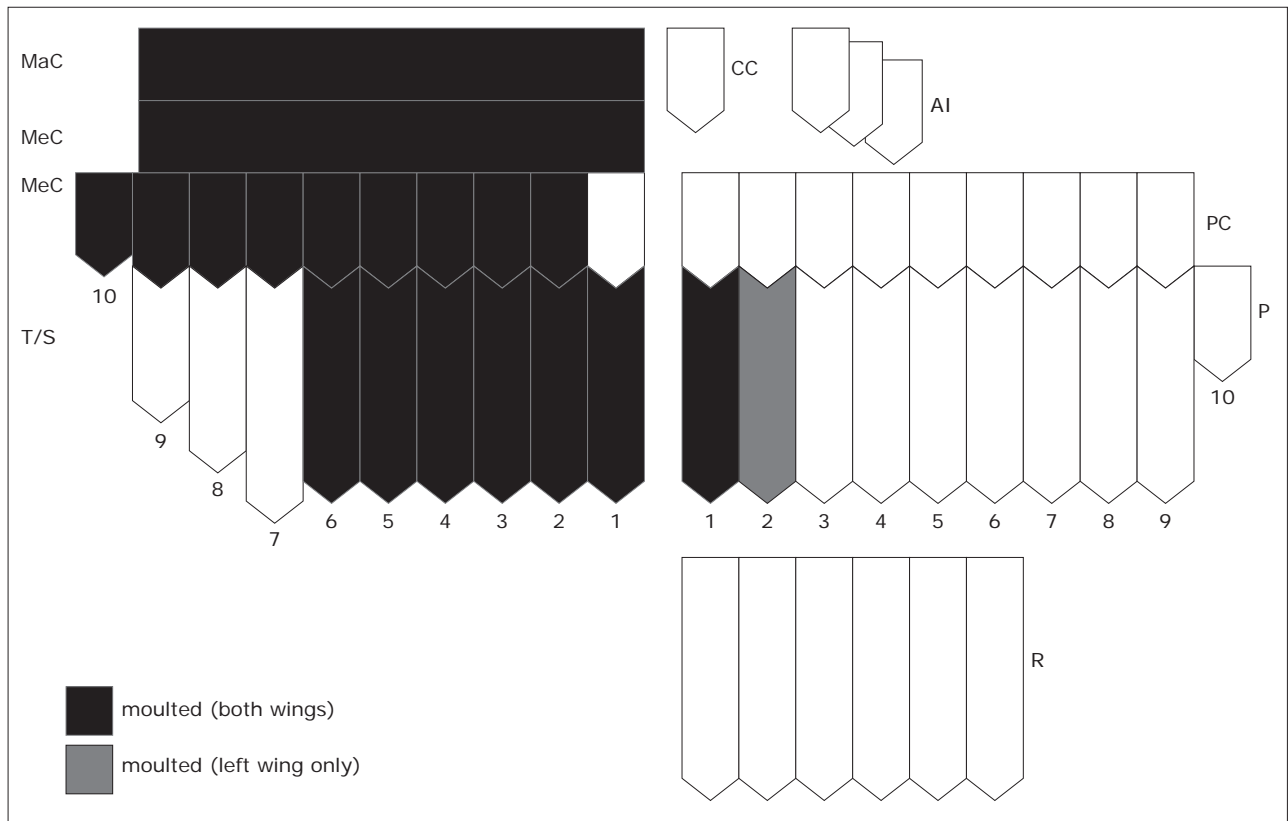
stage 4 (scored as per Gill & Melville 1983) – but generally the active moult has finished (authors' obs.).

First-year birds moult all body feathers and lesser coverts during post-juvenile moult; additionally, a variable number of median coverts are moulted and occasionally some inner greater coverts. The expected extent of post-juvenile moult is shown in Figure 2. First-year birds can routinely be aged in autumn by the presence of a moult limit in the median coverts and/or inner greater coverts, the quality/texture, wear, shape and pattern of juvenile flight and tail feathers, and the pale lining to the upper mandible.

Bird CU52643 did not appear to fit either moult strategy. On first viewing and prior to a detailed examination, the bird was thought to be an adult due to the fresh secondaries and the apparently entirely adult-type median and greater coverts. However, on closer inspection it was found the bird could be aged as a first-year: the pale lining to the upper mandible, and the quality/texture, wear, shape and pattern of the unmoulted wing and tail feathers were all consistent with a first-year bird. A moult limit was present in the greater coverts but was found to be considerably more distal in the wing than expected (between GC1 [unmoulted] and GC2 [moulted]). A subtle contrast between the browner, more worn juvenile primaries, and the blacker, fresher moulted primaries was also visible. Additionally, the iris colour was consistent with a first-year bird (Karlsson *et al.* 1993).

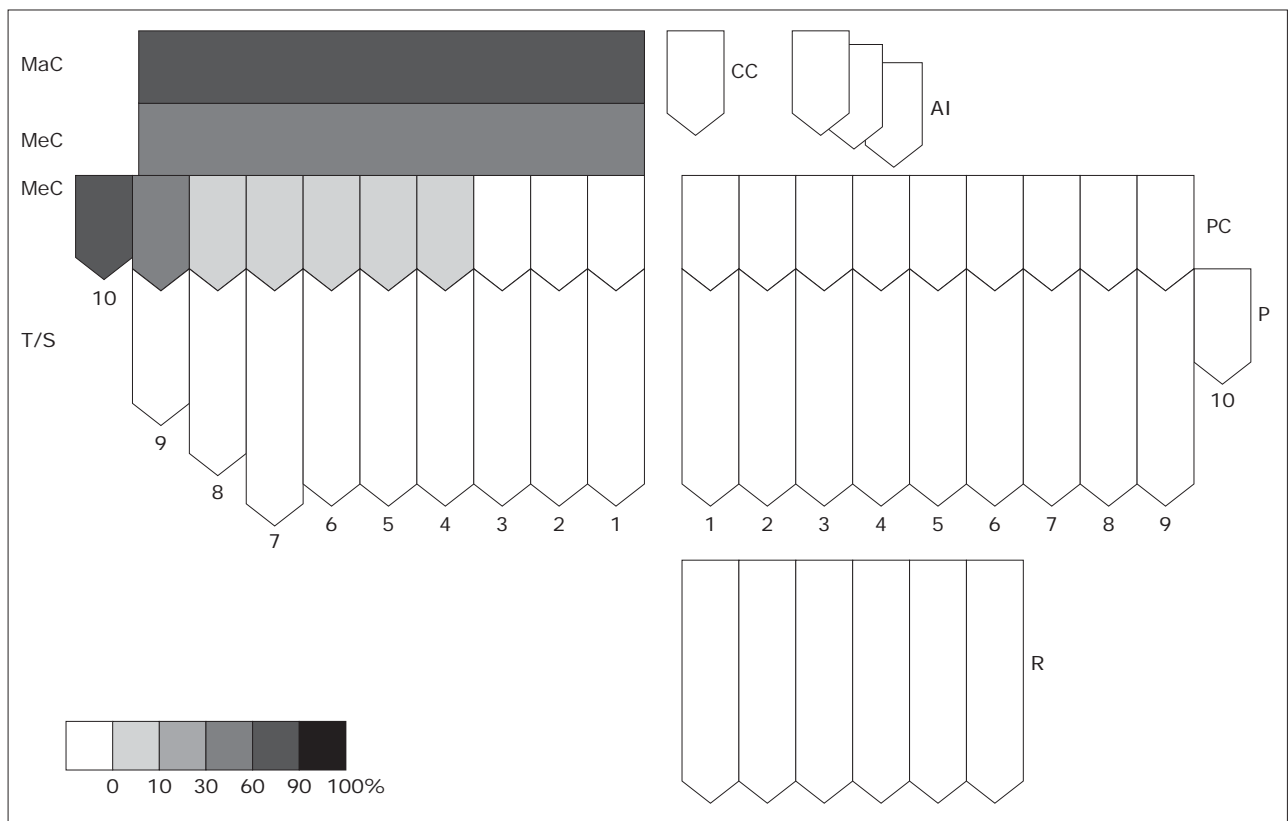
Birds of all age classes sometimes exhibit odd patterns of feather growth due to accidental loss and regrowth. Such accidental loss is generally asymmetric and confined to the more exposed feather tracts such as the tail. By contrast, the symmetrical nature of the feather replacement on this bird and its extent both resemble a controlled moult rather than accidental feather loss.

We have found no other examples of first-year Whinchats with such an extensive post-juvenile moult. Data in Jenni & Winkler (1994) from 199 birds in autumn gave a maximum of seven greater coverts moulted during the post-juvenile moult (mean number moulted 1.4, mode 2), with no first-year birds recorded as having moulted primaries or secondaries (Figure 2).



**Figure 1** Extent of moult in a first-year male Whinchat (ring: CU52643) trapped at Falsterbo, Sweden, 28 August 2014. Modified from Jenni & Winkler (1994).

*Extensió de la muda en un mascle de primer any de Bitxac rogenic (anella: CU52643) capturat a Falsterbo, Suècia, el 28 d'agost de 2014. Modificat a partir de Jenni & Winkler (1994).*



**Figure 2** Extent of post-juvenile moult in wing and tail in first-year Whinchats. Data from Jenni & Winkler (1994). Reproduced with permission.

*Extensió típica de la muda postjuvenil en l'ala i la cua en bitxacs rogenics de primer any. Informació de Jenni & Winkler (1994), reproduït amb el permís dels autors.*

Similarly, other publications (e.g. Cramp 1988, Svensson 1992, Karlsson *et al.* 1993, Urquhart & Bowley 2002) make no mention of post-juvenile moult involving primaries or secondaries. Up to 2014, 1,215 first-year Whinchats were ringed at Falsterbo, none of which were recorded as exhibiting moulted flight feathers (Falsterbo Bird Observatory, unpublished data). Thus, an extensive post-juvenile moult involving the flight feathers in this species would seem to be a rare occurrence.

In other Passerine species for which extensive post-juvenile moult has been recorded, secondaries (and primary coverts) are the feather tracts least frequently moulted (Jenni & Winkler 1994, Gargallo & Clarabuch 1995, Gargallo 2013). Some species that regularly renew tertials during post-juvenile moult may occasionally moult some inner secondaries, seemingly as an extension of the moult of the tertials. Individuals undergoing an eccentric moult of the primaries are also more inclined to moult at least some secondaries (Jenni & Winkler 1994). Thus the fact that Whinchat CU52643 has moulted all secondaries but no tertials and only three (inner) primaries – two on the left wing and one on the right – is at odds with the expected pattern of a typical extensive post-juvenile moult.

Although a Whinchat with such an unusual post-juvenile moult may at first appear overall rather adult-like, close examination provides ringers with a number of clues that will ensure the correct ageing of the individual. Thus, we do not believe that the bird described in this manuscript represents a challenge to established ageing criteria.

## Acknowledgments

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## Resum

### Un mascle de primer any de Bitxac rogenic *Saxicola rubetra* amb una muda postjuvenil inusual

Un mascle jove de l'any (EURING 3) de Bitxac rogenic *Saxicola rubetra* anellat al Falsterbo Bird Observatory, Suècia, va mostrar una muda postjuvenil inusualment extensa. Havia mudat la major part de les cobertores grans, totes les secundàries i algunes primàries internes, però havia retingut totes les rectrius, les terciàries, les plomes de l'àlula i totes les cobertores primàries. No hem trobat referències sobre una muda postjuvenil tant extensa en aquesta espècie.

## Resumen

### Un macho de primer año de Tarabilla norteña *Saxicola rubetra* con una muda postjuvenil inusual

Un macho joven del año (EURING 3) de Tarabilla norteña *Saxicola rubetra* anillado en el Falsterbo Bird Observatory, Suecia, mostró una muda postjuvenil inusualmente extensa. Había mudado la mayor parte de las cobertoras grandes, todas las secundarias y algunas primarias internas, pero retuvo todas las rectrices, las terciarias, las plumas del álula y todas las cobertoras primarias. No encontramos referencias sobre una muda postjuvenil tan extensa en esta especie.

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## Supplementary material / *Material suplementari*

The supplementary material can be found in the online version of this article. / *Es pot trobar material suplementari a la versió en línia d'aquest article.*

**Figure S1.** First-year male Whinchat (ring: CU52643). Falsterbo, Sweden, 28 August 2014. Photo: S. Menzie.  
*Masclle de primer any de Bitxac rogenic (anella: CU52643). Falsterbo, Suècia, 28 d'agost de 2014. Foto: S. Menzie.*

**Figure S2.** First-year male Whinchat (ring: CU52643). Spread wing showing extent of post-juvenile moult. This figure is depicted graphically in Figure 1. Falsterbo, Sweden, 28 August 2014. Photo: S. Menzie.  
*Masclle de primer any de Bitxac rogenic (anella: CU52643). Ala oberta on es veu l'extensió de la muda post-juvenil. Aquesta fotografia es mostra gràficament a la Figura 1. Falsterbo, Suècia, 28 d'agost de 2014. Foto: S. Menzie.*

**Figure S3.** First-year male Whinchat (ring: CU52643). Inside lining of upper mandible, showing typical colour of a first-year bird. Falsterbo, Sweden, 28 August 2014 Photo: S. Menzie.  
*Masclle de primer any de Bitxac rogenic (anella: CU52643). Interior de la mandíbula superior amb el típic color d'un individu de primer any. Falsterbo, Suècia, 28 d'agost de 2014. Foto: S. Menzie.*



## Supplementary material / *Material suplementari*



**Figure S1.** First-year male Whinchat (ring: CU52643). Falsterbo, Sweden, 28 August 2014. Photo: S. Menzie.  
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