

# Capture of two probable gynandromorphic House Sparrows *Passer domesticus* in NE Spain

Joan Carles Abella

The capture of two probable gynandromorphic House Sparrows *Passer domesticus* in NE Spain is reported. The birds were trapped during routine ringing campaigns performed by the Institut Català d'Ornitologia at the ringing stations of Sebes and Aiguamolls de l'Empordà, NE Spain. Both individuals showed bilateral gynandromorphism, with female plumage on the right half and male plumage on the left. These cases contrast with most of the previously reported avian gynanders, that have the male plumage on the right. Some measurements of these birds and a brief summary on the occurrence of such abnormalities in this and other species are commented on.

Key words: gynandromorphism, House Sparrow, *Passer domesticus*, genetic abnormality, bilateral plumage.

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Received: 23.01.02; Accepted: 22.06.03 / Edited by J.Domènech.

Gynandromorphism is known as an endocrine abnormality in sexual genic expression (Bond 1913, Buckley 1982, Parrish *et al.* 1987). In birds a true gynander usually exhibits sexual plumage abnormalities as a result of some gonadal differences (Witschi 1961). There are basically two different types of gynandromorphism: one produces a plumage formed by a mosaic of male and female features, while the other results in a well-delimited bilateral sexual dimorphism. In the latter case, male plumage, corresponding to a testis, is usually located on the right side, while the female plumage is situated on the left side in correspondence with the ovary. This abnormality seems to occur as a result of an aberration taking place during the first mitotic division of the ovum (Gill 1995). This phenomenon has been reported in small mammals, humans, birds and other animals such as invertebrates, especially butterflies (Benoit 1959, Hannah-Alava 1960). Among birds, it is well known to occur regularly in domestic species such as

chickens and pheasants (Bond 1913). In wild birds it has been reported in several families: Anatidae (Tufted Duck *Aythya fuligula*, van Winkel 1983); Falconidae (American Kestrel *Falco sparverius*, Parrish *et al.* 1987); Fringillidae (Evening Grosbeak *Coccothraustes vespertinus*, Shaub 1960, Laybourne 1967; Pink-browed Rosefinch *Carpodacus rhodochrous*, Alström & Olsson 1988); Hirundinidae (Barn Swallow *Hirundo rustica*, Hotynski & Szentendrey 1977); Emberizidae (Black-throated Blue Warbler *Dendroica caerulescens*, Patten 1993; Large-billed Seed-finch *Oryzoborus crassirostris*, Filho & Teixeira 1982); and others (Patten 1993).

In 1997, we carried out a ringing campaign during spring migration at Sebes, Flix, Tarragona (41°14'N 00°32'E). One House Sparrow *Passer domesticus*, out of a total of 103 trapped in the study, exhibited bilateral gynandromorphism. This bird was ringed on 18th March, and had the characters of a male on its left side and those of a female on its right (Plate 1). The male side

**Table 1.** Differences in aspect and biometry in the House Sparrow trapped at Sebes (ring number: ICONA 2668480). \*= with respect to the average of the two measurements.  
*Diferències d'aspecte i biometria del Pardal Comú capturat a l'estació de Sebes (número d'anella : ICONA 2668480). \*=respecte a la mitjana entre les dues mesures.*

	Left side	Right side	Biometrical differences	% variation*
Sexual aspect	Male	Female	—	—
Third primary length	59.5 mm	58.0 mm	1.5 mm	2,55
Wing length	79.0 mm	77.0 mm	2.0 mm	2,56
Tarsus	20.0 mm	19.5 mm	0.5 mm	2,53

was typical of a male House Sparrow in winter plumage: the eye was bordered with a narrow black line and a with a small white spot behind it; the bib was rather faint, showing only a subtle suffusion of black; the crown and nape had a mixture of buff and chestnut; the wing-coverts were chestnut, with distinctive white tips to the median coverts and blackish greater covert centres; the remex fringes were chestnut, with the tertials markedly so; and the mantle and scapulars were quite heavily streaked blackish. The female side was similar to typical females in winter plumage except for small chestnut feathers on the rear of the ear-coverts, and a dark eye-ring; the uniformly black bill was also atypical of a female. No differences were noted in the wing in comparison with a normal female House Sparrow, and the mantle was less streaked than the other, male-like, side; there were no signs of black feathers on the neck. The bird showed some biometrical asymmetries, with the male side c. 2.5% larger than the female one (Table 1). The bird's male (left) and female (right) wing lengths and third primary lengths were similar to the average observed, respectively, for typical males and females in the population of the study area (Table 2). Once ringed

(ring number ICONA 2668480), measured and photographed, the bird was released.

A second presumably gynandromorphic House Sparrow was trapped on 17 May 1999 in the course of a spring ringing campaign carried out at the Aiguamolls de l'Empordà, Girona (42°18'N 03°09'E). Among the 284 House Sparrows trapped during the 60 days of ringing activity (1 April to 30 May) there was one individual showing bilateral sexual dimorphism. As with the first bird, this individual exhibited bilateral gynandromorphism with male plumage on the left side and female plumage on the right. Unfortunately, only the female side was measured (wing length, 78 mm; third primary length, 60 mm; body mass, 28.1 g), and a full description of the bird was not recorded. The bird was ringed (ring ICONA 2863184) and released.

Kumerloeve (1954) pointed out that in most bilateral gynandromorphics, the female characters are shown on the left side, the opposite only occurring in about 15% of cases. Accordingly, the two cases described here appear to refer to a rather rare phenomenon.

Other cases of gynandromorphism have been reported for House Sparrows. Summers-Smith, in McCanch (1992), summarizes at least 28 pub-

**Table 2.** Values by sex of feather length (third primary) and wing length (maximum chord) of adult House Sparrows trapped at the Sebes ringing site during 1992-2001. \* = with respect to the average of the two measurements.

*Valors per sexe de la longitud de la tercera primària i de la longitud de l'ala (corda màxima) dels adults de Pardal Comú capturats a l'estació d'anellament de Sebes durant 1992-2001. \*=respecte a la mitjana entre les dues mesures.*

Sex	Male			Female			% variation *
	0	SD	n	0	SD	n	
Third primary length	59.9	1.63	59	58.0	1.41	43	3.22
Wing length	79.4	1.68	51	76.8	1.84	37	3.33

**Plates 1-3.** House Sparrow showing bilateral sexual plumage dimorphism: 1) right side with female-like appearance. 2) Left side with male characters. 3) View of the upperparts showing the differences in colour of the wing-coverts. Photos: J.C. Abella. *Pardal comú amb plomatge de sexe bilateral: 1) banda dreta amb aparença de femella. 2) Banda esquerra amb característiques de mascle. 3) Imatge de les parts superiors on es veuen les diferències de coloració de les cobertores alars. Fotos: J.C. Abella.*





lished records, although only two of these were considered to be true gynandromorphs. The problem with categorizing gynandromorphic birds lies in the fact that there are no standard conventions of analysis (Graves 1996), and sometimes it is difficult to assign individual birds with certainty. It is thought that the first case reported here was correctly identified as a bilateral gynandromorphic, as it showed bilateral sexual dimorphism in the skeleton (cf. Lowther 1977) as well as in the plumage. Nevertheless, this individual shows some parallels with a Black-throated Blue Warbler *Dendroica caerulescens* observed in California (Patten 1993) and further discussed by Graves (1996): (a) it has the male side on the left half; and (b) it shows some male phenotypes on the female side, in this case very subtle traces of reddish feathers on the ear-coverts. As far as we know, both aspects may exemplify a further type of gynander.

Following the conclusions given by Graves (1996): "little has been learned about gynandromorphism in passerines other than the fact that departure from bilateral asymmetry is variable", the House Sparrow reported in detail here represent an example of a new variant of this aberration in passerines.

## Acknowledgements

I should like to give my warm thanks to the Ajuntament de Flix and the Parc Natural dels Aiguamolls de l'Empordà for sponsoring the ringing programmes at Sebes and the Aiguamolls de l'Empordà. I am also indebted to Oriol Clarabuch for providing the ringing data from the House Sparrow trapped at the Aiguamolls. Dr. Joan Carles Senar assisted me with some references.

## Resum

### Captura de dos Pardals Comuns *Passer domesticus* probables ginandromòrfics al NE d'Espanya

Es descriu la captura de dos Pardals *Passer domesticus* probables ginandromòrfics al NE d'Espanya. Els ocells es van capturar durant les campanyes d'anellament que duu a terme l'Institut Català d'Ornitologia a les estacions de Sebes i els Aiguamolls de l'Empordà. Els dos exemplars mostraven caràcters de ginandromorfisme bilateral amb plomatge de femella al costat dret i plomatge de mascle a la banda

esquerra. Aquestes dades no coincideixen amb la majoria dels casos coneguts d'ocells amb ginandromorfisme, ja que tenen els caràcters de mascle a la banda dreta. En aquesta nota es proporcionen diverses mesures dels ocells i un resum breu sobre la presència d'aquesta anormalitat tant en aquesta com en altres espècies d'ocells.

## Resumen

### Captura de dos Gorriones Comunes *Passer domesticus* probables ginandromòrficos en el NE de España

Se describe la captura de dos Gorriones comunes *Passer domesticus* probables ginandromòrficos en el NE de España. Las aves se capturaron durante las campañas de anillamiento que realiza l'Institut Català d'Ornitologia en las estaciones de Sebes y Aiguamolls de l'Empordà. Los dos ejemplares mostraban caracteres de ginandromorfismo bilateral con plumaje de hembra al lado derecho y plumaje de macho en la parte izquierda. Estos datos no coinciden con la mayoría de los casos conocidos hasta ahora de aves con ginandromorfismo, ya que lo usual es que tengan los caracteres de macho en la parte derecha. En esta nota se proporcionan diversas medidas biométricas de las aves capturadas y un resumen breve sobre la aparición de esta anomalidad tanto en esta como en otras especies de aves.

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