

A closer look: crows, sparrows and hybrids

For many species, the Alps are a natural barrier that limits their range. In Switzerland there is a wide contact zone along this boundary where the ranges of Carrion Crow and Hooded Crow as well as House Sparrow and Italian Sparrow overlap. This zone has remained largely unchanged since 1993–1996.

A hybrid is the offspring of two different parent species or subspecies. When two species regularly hybridise – normally in the area of overlap between their respective ranges – hybrid zones occur that can be mobile or static. In Switzerland's southern Alps in the cantons of Valais, Ticino and Grisons, two taxonomic pairs of passerines occur that regularly hybridise: Carrion Crow and Hooded Crow, and House Sparrow and Italian Sparrow.

From black to grey: Carrion and Hooded Crow hybrids

While the Carrion Crow is solid black, the back, belly and undertail coverts of the Hooded Crow are grey. Hybrids of Carrion and Hooded Crow have features of both parent species, mostly grey and black patches on the belly and back.

The Carrion Crow mainly inhabits Switzerland north of the Alps. Density is lower south of the Alps, where it is gradually replaced by the Hooded Crow. In Italy, the Carrion Crow is therefore found only in the Alpine and Pre-Alpine north, while the areas further south are practically exclusively occupied by the Hooded Crow¹. Southern Switzerland lies in the middle of the hybrid zone between Carrion and Hooded Crow. Hooded Crows and hybrids have occasionally been observed north of the Alps in the Carrion Crow's range.

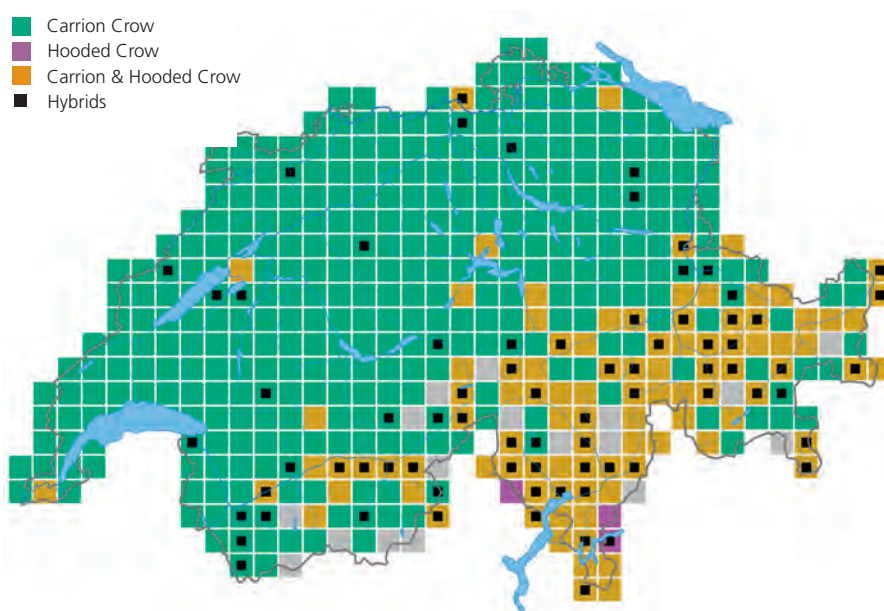
In Switzerland, pure populations of Hooded Crows have only been found in small pockets in southern Ticino. However, given that the hybrid zone in Italy extends at least as far as Milano¹ and that hybrid crows are not always easy to identify⁴, it is likely that hybridisation also occurs in these areas in southern Ticino. An analysis of 79 entries with pictures on ornitho.ch showed that 24 %

of birds recorded as Hooded Crows were in fact hybrids. The tendency to mistake hybrids for Hooded Crows makes it difficult to determine the exact delineation of the hybrid zone in other countries too, such as the UK^{AtGB}.

During the last ice age, isolated groups of the same species evolved separately in their southern refugia. When the ice age ended and glaciers receded about 10 000 years ago, the Carrion Crow began to recolonise central Europe from the southwest, the Hooded Crow from the southeast³. Thus the two ranges now meet along a natural boundary – the Alps. The Carrion Crow occurs in western Europe from Spain to England, the Hooded Crow in eastern Europe from Italy to Scotland. The hybrid zone extends from Italy across Austria and Germany to the UK. The hybrid zone can be mobile, a fact demonstrated on the Danish-German border, where the Carrion Crow has advanced northwards by about 20 km at the expense of the Hooded Crow⁵. The same pattern was found in Scotland, where the Carrion Crow expanded its range to the northwest between 1928 and 1974, causing the Hooded Crow to retreat³. Since 1974, the hybrid zone in the UK has remained largely unchanged^{AtGB}.

Same chirp, different bird: House Sparrow and Italian Sparrow

Unlike crows, only male sparrows can be identified as hybrids. Male House Sparrows have a grey crown and grey cheeks, while the crown of the Italian Sparrow is brown and the cheeks are white. Hybrids sport varying degrees of intermediate plumage with a grey-brown crown and dirty greyish-white cheeks.



Distribution of Carrion Crow (green) and Hooded Crow (purple) in 2013–2016. Areas in which both Carrion and Hooded Crows occur are shown in yellow. Atlas squares where hybrids were recorded are marked with a black square.



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Jérôme Sotter

Hybrids have an intermediate plumage with features from both parent species or subspecies. Carrion and Hooded Crow hybrids generally have a grey and black belly, breast and back (left); hybrids of House Sparrow and Italian Sparrow have a grey-brown crown and dirty-grey cheeks (right).

The Italian Sparrow is found solely on the Italian peninsula, from which the House Sparrow is largely absent, occurring only in the north². Hybridisation exists in the relatively narrow area in the southern Alps where the two ranges overlap. While the House Sparrow occurs in northern Switzerland and in the Alps, there are but a few areas in southern Ticino where only the Italian Sparrow has been recorded. In Ticino, the Italian Sparrow is gradually replaced by the House Sparrow from south to north and with increasing altitude⁷. Earlier studies have shown that pure populations of Italian Sparrows exist in southern Ticino^{6, 7}. Compared to 1970–1978⁷ and 2007⁶, the hybrid zone has remained largely stable up to the present.

It will be interesting to see if and how the hybrid zones of crows and sparrows in Switzerland change in the future. The data collected for this atlas provide a solid foundation for further research. In order to chart any changes that occur, it is important

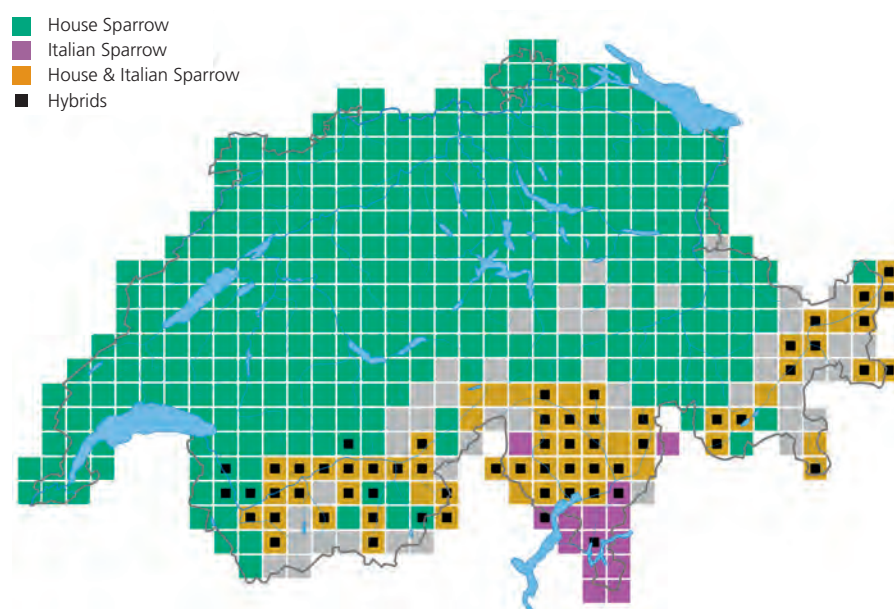
that attention is given to common breeding birds such as crows and sparrows and that hybrids are identified and recorded as accurately as possible.

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¹ Brichetti & Fracasso (2012); ² Brichetti & Fracasso (2013); ³ Cook (1975); ⁴ Duquet (2012); ⁵ Haas & Brodin (2005); ⁶ Nidola (2008); ⁷ Schifferli & Schifferli (1980)

Species

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Distribution of House Sparrow (green) and Italian Sparrow (purple) in 2013–2016. Areas in which both House and Italian Sparrow occur are shown in yellow. Atlas squares where hybrids were recorded are marked with a black square.