

# British Birds

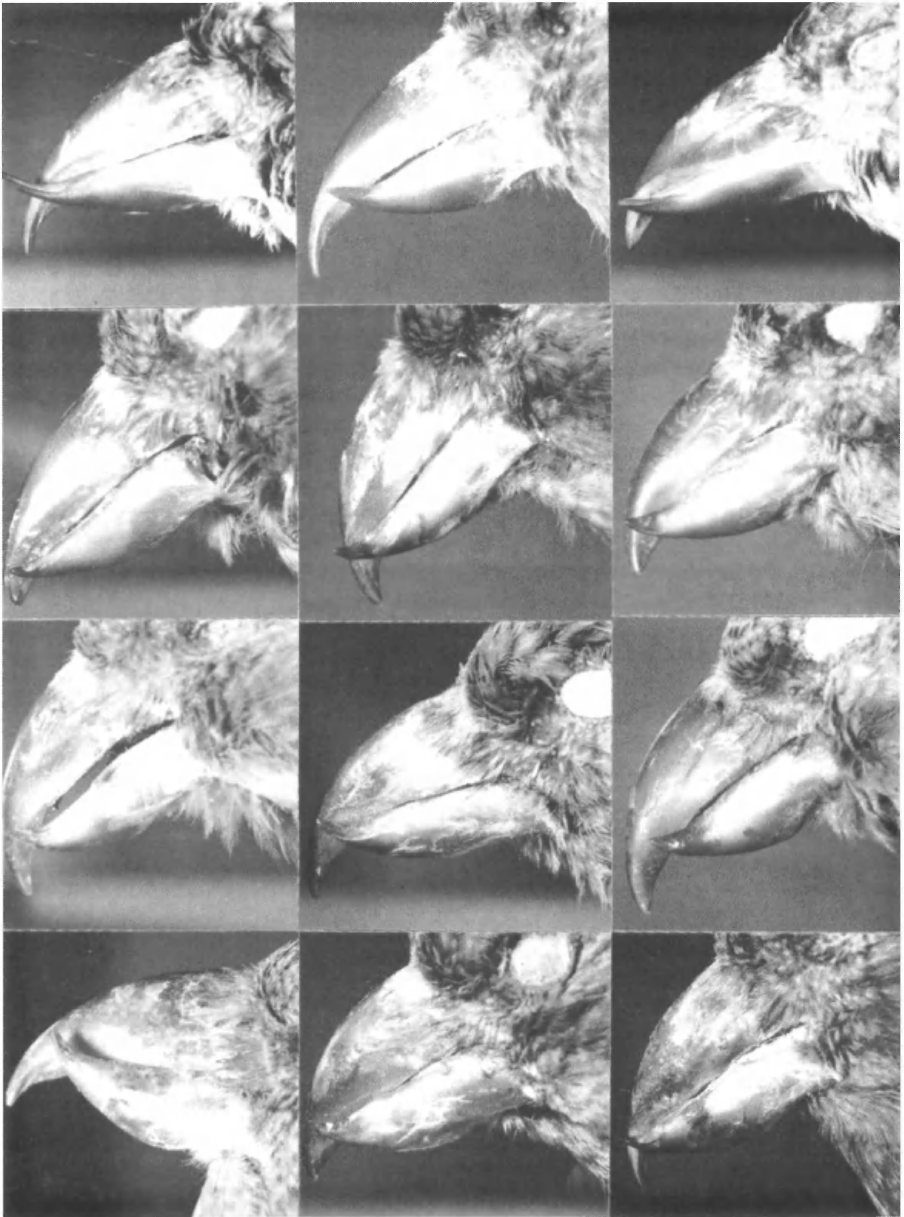
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## Identification of Crossbill and Scottish Crossbill

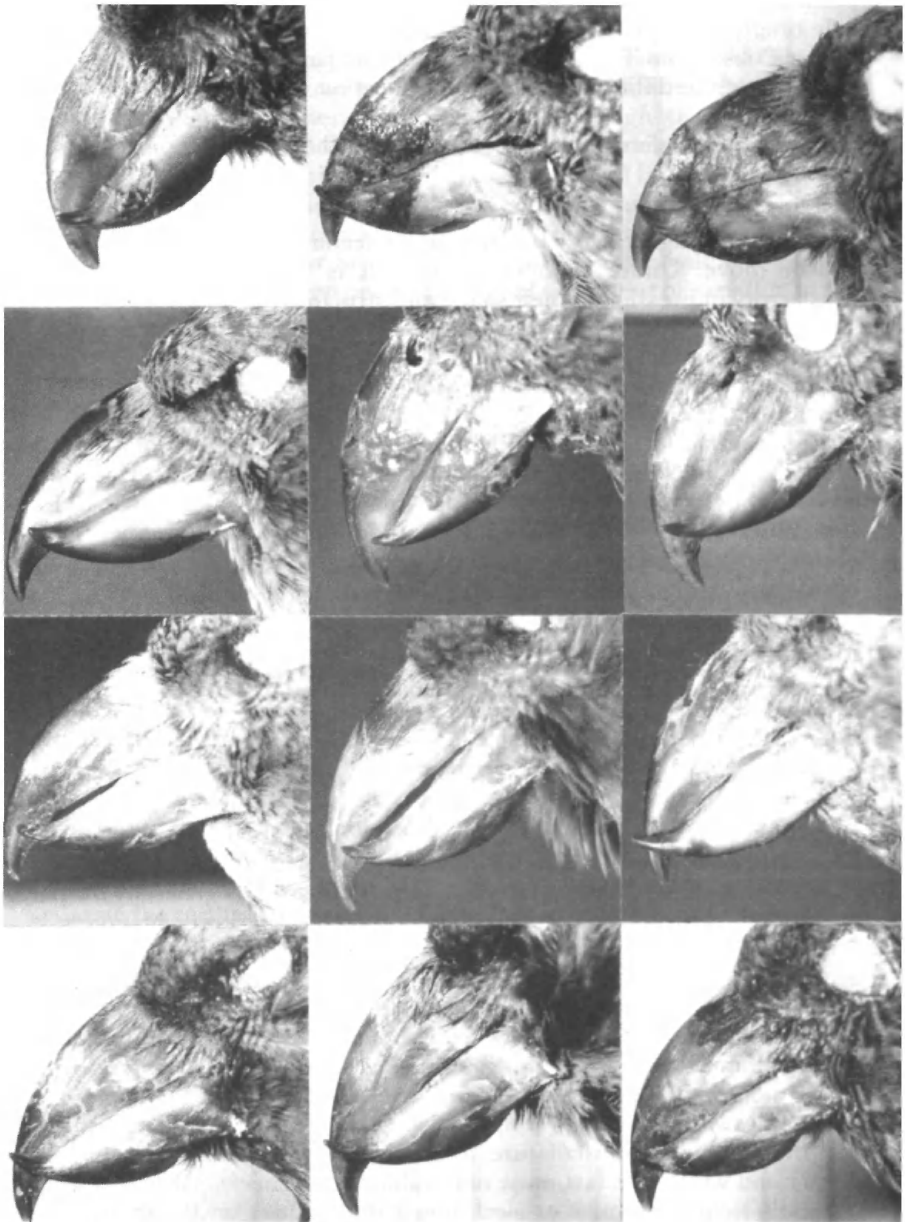


*Alan G. Knox*

Until recently, the Scottish Crossbill *Loxia scotica* was regarded as a subspecies of either the Crossbill *L. curvirostra* or the Parrot Crossbill *L. pytyopsittacus* and there was, therefore, little interest in its identification features. Even its biometrics were poorly documented. A study of museum specimens in 1972 and 1973 (Knox 1975, 1976; since extended) established some of the characters of Parrot Crossbill, Scottish Crossbill and the nominate race of Crossbill. Measurements were taken from several hundred birds, along with close-up photographs of the ventral aspect and profile of their bills. Following analysis, it was possible to estimate the range of variation in each form. Other differences between Crossbills and Scottish Crossbills became apparent during the course of fieldwork in the Highlands of Scotland (Knox in press). Crossbills were also studied in areas where Scottish Crossbills were not present (southern Scotland, England, Sweden and Finland).



43. Bills of 12 Crossbills *L. curvirostra*. Direction of bill crossing of crossbills is dimorphic, and some of the photographs in plates 43 & 44 have been printed in reverse to ease comparison. From left to right, top to bottom: (a) male, Essex, June 1936; (b) male, Barra, Highland, summer 1909; (c) female, near Moscow, USSR, December; (d) male, Germany, August 1887; (e) male, Woburn, Bedfordshire/Buckinghamshire, January 1910; (f) female, Gloucestershire, January 1931; (g) male, Sweden, February 1957; (h) male, north Italy, November 1905; (i) female, Brecon, Powys, January 1888; (j) male, Suffolk, October 1915; (k) male, Co. Wicklow, Ireland, February 1904; (l) male, Norfolk, November 1915 (*Alan G. Knox*)



44. Bills of 12 Scottish Crossbills *L. scotica*. From left to right, top to bottom: (a) male, Elgin, Grampian, March 1910; (b) male, Ballater, Grampian, August 1940; (c) male, Ballater, September 1940; (d) female, Glengarry Forest, Highland, April 1938; (e) male, Fochabers, Grampian, August 1902; (f) female, Rothiemurchus, Highland, March 1943; (g) female, Nethybridge, Highland, March 1913; (h) male, Glengarry Forest, April 1938; (i) male, Fochabers, Grampian, November 1902; (j) male, Aviemore, Highland, January 1943; (k) male, Beauly, Highland, February 1935; (l) male, Cromarty, Highland, February 1910 (Alan G. Knox)

Crossbill identification is not easy and, while vocalisations are covered only briefly here, the information on visual identification may be helpful to some observers. The main purpose of this paper is, however, to point out some of the difficulties in the identification of Crossbill and Scottish Crossbill.

Throughout, references to Crossbill are to the nominate subspecies.

### **Watching crossbills**

Crossbills are highly acrobatic and, while feeding, are almost constantly on the move. Under such conditions, it is very difficult to gain a satisfactory impression of their shape and structure. Specific identification should not be attempted until they stop feeding and adopt a normal 'resting' attitude. Then, preferably using a telescope, careful attention should be paid to the relative proportions of head and body, and to the bill and head shapes. Full-profile and head-on views are usually essential. Oblique views can be highly misleading, giving false impressions of both head shape and bill shape. Individuals with the crown feathers raised, even slightly, or the bill partly open may cause problems. Crossbills sometimes sit for long periods with their bills slightly agape. They normally cannot be identified with confidence if they have been seen only briefly or watched while feeding.

### **Identification criteria**

There are no known plumage or behavioural differences between Crossbill and Scottish Crossbill.

Compared with the Crossbill, which is more widely distributed and better known, the Scottish Crossbill is on average marginally larger and heavier. There is much variation, and the difference is not particularly noticeable in the field, even when the two forms are seen side by side. Crossbill and Scottish Crossbill differ most conspicuously in the head and bill (plates 43 & 44). The bill of the Scottish Crossbill is generally deeper at the base, with a more steeply curved culmen: the lower mandible is usually deep, and often bulging, with a strong upward curve from the deepest point to the tip; seen from below or in front, the base of the bill, particularly the lower jaw, is wide. On average, the bill of the Crossbill is narrower and less deep, with a less steeply curved culmen; the lower jaw is usually slimmer and rarely appears bulging, being much straighter, with the tip pointing more forwards than upwards.

Together with its heavier bill, the Scottish Crossbill has a larger skull, and the associated musculature is more massive. The head is longer, deeper and wider, the last most noticeable at the cheeks. Although both crossbills frequently raise or sleek down the feathers on the crown and thereby change its shape, the normal profile of the Scottish Crossbill's head is longer and flatter-crowned than the more rounded head of the Crossbill. This combination of features sometimes makes the Scottish Crossbill's eyes appear to be positioned farther forward.

With its heavy bill and large, angular head, the Scottish Crossbill looks less well proportioned than the Crossbill, often appearing noticeably top-

heavy. To observers familiar with Scottish Crossbills, Crossbills can seem very round-headed and small-billed.

In all the standard biometrics, the ranges of measurements for Crossbill and Scottish Crossbill overlap broadly, and the differences described above are relative, rather than absolute. Although the extremes of variation are recognisable (top rows of birds in plates 43 & 44), many crossbills cannot be identified specifically in the field by sight alone, even by observers with considerable experience. Separating larger-billed Crossbills (as in the lower part of plate 43) from smaller-billed Scottish Crossbills (the lower part of plate 44) is not always possible using just visual criteria. Few birdwatchers are aware of the extent of variation in the shape of the bill of any species (or subspecies) of crossbill, or with the limits to the variation in each form: individuals appear to grade from large-billed to small-billed. In the field, there is a tendency to identify medium-billed and large-billed Crossbills as Scottish Crossbills. It is less common for small-billed Scottish Crossbills to be identified as Crossbills.

### Vocal differences

#### *Song*

The songs of all species of crossbill are complex and variable (Knox in prep.), and little has been published about the differences between the taxa.

#### *Calls*

The basic call of the Crossbill is a sharp 'chip, chip', but a number of distinct call-types occur, varying from a high, ringing 'jip, jip' to a deep 'choop, choop'. Some calls of the Scottish Crossbill are deeper and more rounded: 'chup, chup'; others have a lighter quality. Partly depending on context, the calls of the Crossbill can at times sound either higher or lower than those of the Scottish Crossbill, making identification difficult. Both species, however, make some diagnostic calls, and these may be used to separate the forms. A discussion of variation in crossbill vocalisations and detailed descriptions of the calls will be presented elsewhere (Knox in prep.). The 'tyoop' call claimed to be diagnostic of the Scottish Crossbill (Witherby *et al.* 1938) is very similar to the 'toop' call of the Crossbill.

The degree of variation in crossbill vocalisations is not generally recognised, and there is a temptation to assign birds with high calls to *curvirostra*, and those with deeper calls to *scotica*. This over-simplification is undoubtedly leading to erroneous identifications.

### Conclusions

In evolutionary terms, Crossbill and Scottish Crossbill are very closely related. They are more alike in their appearance than any other group of species that occurs in Britain. Until further work demonstrates easier identification criteria for the two forms, it is strongly recommended that identification should be attempted only in the case of the more extreme individuals of either form in northern Scotland, unless tape recordings are obtained for sonographic analysis (to be described elsewhere). Editors and

compilers of bird reports and avifaunas are similarly urged to exercise caution in the acceptance of records.

### Summary

From fieldwork and study of museum specimens, the problems of separating the nominate race of Crossbill *Loxia curvirostra curvirostra* and Scottish Crossbill *L. scotica* are discussed. Accurate field observation is difficult: good, prolonged views are essential, and careful attention should be paid to the relative proportions of head and body and to bill and head shapes. Scottish Crossbill averages marginally larger. The most conspicuous difference is in head and bill, Scottish Crossbill generally having a deeper-based bill with more steeply curved culmen and a longer, deeper and wider head with flatter crown, and often appearing top-heavy. Measurements of the two forms overlap broadly, however, and many individuals cannot be identified specifically in the field. Differences and overlap in calls are also discussed briefly. It is recommended that, pending further research, only extreme individuals of either form in northern Scotland should be positively identified.

### References

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