

- LACK, D. 1971. Ecological isolation in birds. Blackwell Scientific Publications, Oxford.
- LOWTHER, P. 1983. Breeding biology of House Sparrows: Intercolony variation. Occas. Pap. Univ. Kans. Mus. Nat. Hist. 107:1-17.
- MACKENZIE, J. M. D. 1946. Some factors influencing woodland birds. Q. J. For. 40:82-88.
- NORUSIS, M. J. 1985. SPSSX advanced statistics guide. McGraw-Hill, New York.
- PINOWSKI, J. 1967. Die Auswahl des Brutbiotops beim Feldsperling (*Passer m. montanus* L.). Ekol. Pol. 15: 1-30.
- SUMMERS-SMITH, D. 1963. The House Sparrow. Collins. London.
- SUMMERS-SMITH, J. D. 1988. The sparrows. Poyser Ltd., Calton, United Kingdom.
- VON HAARTMAN, L. 1971. Population dynamics. Pages 392-461 in Avian biology, vol. 1 (D. S. Farner and J. R. King, Eds.). Academic Press, New York.
- ZAR, J. H. 1984. Biostatistical analysis, 2nd ed. Prentice-Hall, Englewood Cliffs, New Jersey.

Received 3 August 1992, accepted 29 November 1992.

*The Auk* 110(2):385, 1993

### Song Differences Between North American and European White-winged Crossbills (*Loxia leucoptera*)

JOHAN ELMBERG

Department of Animal Ecology, Swedish University of Agricultural Sciences, S-901 83, Umeå, Sweden

According to my experience, the song of the White-winged Crossbill (*Loxia leucoptera*; referred to as the Two-barred Crossbill in Europe) in eastern Canada is distinctly different from that of Fennoscandian birds. I heard about 20 singing individuals in New Brunswick, Canada, in August 1991. They all had a song similar to that generally described in North American field guides. This song includes a long series of loud trills on different pitches, each trill being monotonous and reminiscent, for example, of a singing Greenfinch (*Carduelis chloris*), a calling Common Redpoll (*Acanthis flammea*), or a singing Arctic Warbler (*Phylloscopus borealis*). Four recordings of singing White-winged Crossbills from Ohio and Maine, supplied by the Cornell Laboratory of Ornithology, all feature the same song type.

In contrast, the White-winged Crossbills that I have heard in Sweden and Finland (June-October) all have had a very different song. It is rich and varied, consisting mainly of clear (metallic) and slurred whistles, but also of chatters and wheezes. This song is frequently interspersed with any of the three basic flight calls (Elmberg 1991). This song type, thus, is reminiscent of the song of the Red Crossbill (*L. curvirostra*) or the Parrot Crossbill (*L. pytyopsittacus*). Note that the recording of a singing White-winged Crossbill on *All the Bird Songs of Europe* (Roché 1990) is also a Canadian bird (Jean C. Roché pers. comm.).

Recent suggestions of the occurrence of cryptic species in the Red Crossbill (Groth 1988) highlights the importance of knowing whether the song of the White-winged Crossbill differs consistently between the Palearctic and the Nearctic. In comparison with its closest relatives (see Knox 1990, Tyrberg 1991), the taxonomy and phylogeny of the White-winged Cross-

bill have received little attention (cf. Griscom 1937). Thus, better knowledge of the song (and other vocalizations) of the White-winged Crossbill is needed from all parts of its range. I especially urge birders and professional zoologists to record and describe singing White-winged Crossbills from eastern Russia, western North America, and Hispaniola, where the geographically isolated *L. l. megaplaga* occurs.

I thank Jeff Groth and Krister Mild for comments on a draft of this note. I thank Claude Chappuis, Jean C. Roché and Richard Ranft (National Sound Archive in London, United Kingdom) for information concerning recordings. Special thanks are due to Andrea L. Priori and Roberta Swan at the Cornell Laboratory of Ornithology, Ithaca, New York, for providing North American recordings.

#### LITERATURE CITED

- ELMBERG, J. 1991. Flight calls of Two-barred Crossbill. Br. Birds 84:344-345.
- GRISCOM, L. 1937. A monographic study of the Red Crossbill. Proc. Boston Soc. Nat. Hist. 41:77-210.
- GROTH, J. G. 1988. Resolution of cryptic species in Appalachian Red Crossbills. Condor 90:745-760.
- KNOX, A. G. 1990. Identification of Crossbill and Scottish Crossbill. Br. Birds 83:89-93.
- ROCHÉ, J. C. 1990. All the bird songs of Europe. Four compact discs. Sittelle, La Mure, France.
- TYRBERG, T. 1991. Crossbill (genus *Loxia*) evolution in the West Palearctic—A look at the fossil evidence. Ornis Svecica 1:3-10.

Received 27 April 1992, accepted 15 June 1992.