REPLY TO BENKMAN:

Hispaniolan crossbills formerly resided in the Bahamas

David W. Steadman* and Janet Franklinh,c,1

We appreciate the issues raised in Benkman’s letter (1), which is critical of our paper (2). Here, we will address these issues.

Benkman (1) believes that the late Pleistocene Bahamian (Abaco island) fossils we identified as Hispaniolan crossbill (Loxia megaplaga), in fact, represent nonresident individuals of red crossbill (Loxia curvirostra). The title of his letter begins with “Crossbills were unlikely resident in the Bahamas” (leaving some uncertainty), but concludes with apparent certainty that “thus, there was no population to be extirpated.” The most diagnostic of the Bahamian crossbill fossils is the mandible, which agrees with that of L. megaplaga and disagrees with that of L. curvirostra in two of three characters. The third character is intermediate between the character states in these two species. Thus, in no character of the mandible and in no postcranial character [as corroborated by Benkman (1)] do the Bahamian fossils uniquely agree with the character state in L. curvirostra, making it illogical to claim that they represent that species.

Benkman’s statement (1) about how common or rare L. curvirostra is today in different pine habitats in southern Mexico and Central America has no bearing on the identification or significance of the Bahamian fossils.

While we agree with Benkman that L. curvirostra is a highly dispersive species, we point out that the white-winged crossbill (Loxia leucoptera, the presumed ancestor of L. megaplaga) is highly dispersive as well, as evidenced by modern records in the southeastern United States and even Bermuda (3), and the fact that, at some point in the distant past, it must have reached Hispaniola (4). If L. curvirostra dispersed to the southeastern United States with any regularity in the late Pleistocene, as Benkman suggests (1), we would expect it to occur as a fossil there, especially in the very rich fossil record of Florida (5, 6). The only late Pleistocene fossils of L. curvirostra are from New Mexico, Arizona, and California (7, 8). The eight fossil specimens of crossbills from Abaco are best interpreted as representing a resident population of L. megaplaga that once lived on the large (>17,000 km²), pine-clad version of Abaco that existed during glacial times. As such, crossbills are only one of a number of Greater Antillean species that formerly inhabited the Bahamas (9).

1 Benkman CW (2017) Crossbills were unlikely resident in the Bahamas; thus, there was no population to be extirpated. Proc Natl Acad Sci USA 10.1073/pnas.1716928114.

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