Testing for inter-drainage connections on the basis of the distribution pattern of endemic freshwater fishes

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With 4 figures and 1 table

Abstract: We classified the secondary rivers of the Duero and Tagus drainages on the basis of the presence or absence of native freshwater fishes in order to analyse hypothetical interconnections between them and to survey intra-drainage biogeographical complexity. Except for a few rivers with low diversity, the tributaries were classified into two main biogeographical areas (Duero and Tagus basins), which were subdivided into different biotic regions delimited by significant boundaries. In the Duero basin, in particular, three regions were identified. One corresponds to a large and homogeneous group of tributaries, containing species not shared with the Tagus basin. Two other small regions, at the south-western border of the Duero basin, were characterized by the presence of a local endemic species and by a fauna related to that of the Tagus basin. Similarly, three biotic regions were found in the Tagus basin. The middle-upper basin plus the Alagón River was defined by the presence of *S. trutta* and *C. arcasii*. The other two regions, located in the lower basin, were both characterized by the presence of *Ch. lemmingii*; but were differentiated on the basis of the distribution patterns of their lentic species. The internal biogeographical complexity detected in the Duero and Tagus drainages showed both geographical and historical components. Our data support the existence of interconnections between the basins during the Cenozoic period, and we postulate the existence of an ancient endorheic basin connecting the south-western part of the Duero and the north-west of the Tagus basin, as a historical explanation for translocation of fauna.

Key words: Biogeography, Paleohydrography, Biotic boundaries.

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