Trait data for the bird species in each region were extracted from the handbooks of the birds of the Western Palaearctic (BWPi 2006). Missing species and data were gathered from species publications and avifauna Internet websites (e.g. BirdLife). Traits were: Body mass, diet (invertebrates, vertebrates, vegetal, fish, carrion) and feeding behaviour (Pursuit (air and/or aquatic), sally, foliage/gleaning, pouncing, grazing, picking/pecking/stabing, digging, overturning, probing). For both diet and feeding behaviour, each sub-category was expressed as a binary state variable (0 or 1) to make sure a species could have several diet or feeding behaviour strategies (see Thuiller et al. 2014 for more details).

Body mass was log-transformed and normalized prior all analyses. We used a mixed-variables coefficient distance that generalized Gower's coefficient of distance to allow for the treatment of various types of variables when calculating distances (Pavoine *et al.* 2009). Euclidean distance was used for body mass, while the Sørensen distance was used for binary data type, as e.g. for each sub-group diet and feeding behaviour trait. We built a functional dendrogram linking all species in a functional space (UPGMA) to estimate ultrametric functional distances between species.

Additional references

BWPi. Birds of the Western Palearctic Interactive 2.0 (BirdGuides: Oxford, 2006).

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