Procrustes analysis

Field collected- grouping matching

PCA? MANCOVA

To assess wing shape differences between populations, the allometry-free variables were used as input for a Canonical Variate Analysis (CVA), and to obtain Procrustes and Mahalanobis distances. CVA determines whether the pre-defined seven populations can be statistically distinguished based on the relative warps matrix. The success of the CVA in assigning specimens to populations was determined using a cross- validation procedure in which each specimen is omitted from the initial calculation of the CV axes and used as a test set. The omitted specimen is then treated as an unknown and assigned to the population whose mean is closest using the CV axes (Webster and Sheets, 2010). The shape means for the seven populations were plotted along the two canonical variate axes based on the Procrustes distance matrix.

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