# Predicting species distributions in new areas or time periods with alpha-shapes

SUPPORTING INFORMATION – APPENDIX A

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Table A1. Results of the principal components analysis summarizing the six climatic predictors used for predicting the potential distribution of the African clawed frog (*Xenopus laevis*).

|	PC1	PC2	PC3
Standard deviation	1.815011	1.398317	0.684919
Proportion of variance	0.549044	0.325882	0.078186
Cumulative proportion	0.549044	0.874926	0.953112
Loadings			
Mean number of frost days	0.536	0.14	0.826
Precipitation seasonality	-0.246	0.494	-0.828
Mean total annual precipitation	-0.221	-0.6	-0.207
Mean temperature of the coldest month	-0.539	0.114	-0.207
Mean temperature of the warmest month	-0.543	0.137	-0.15
Mean number of wet days	0.134	-0.622	-0.481
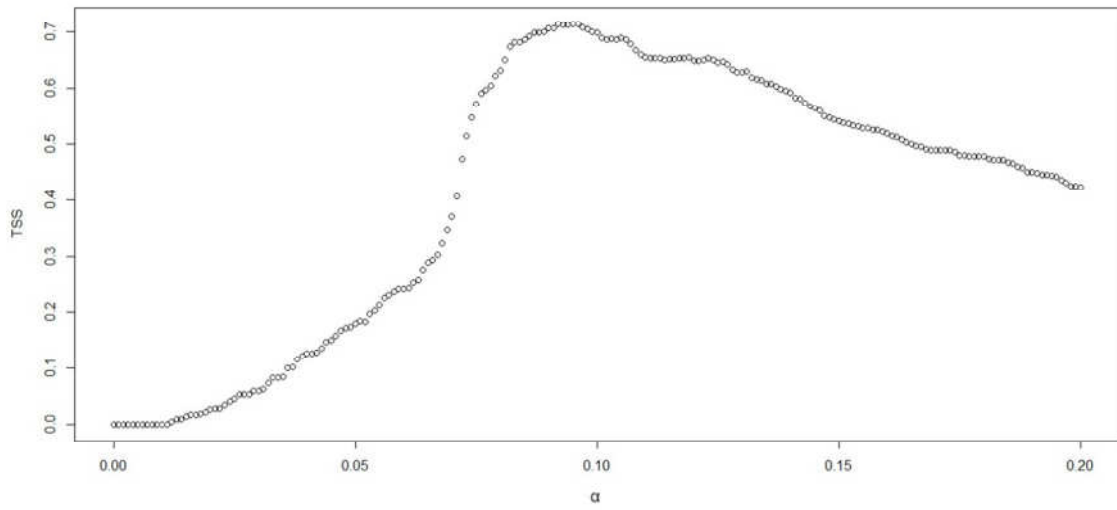
Fig. A1. Values of the true skill statistics measuring the discrimination between presences and absences of *Xenopus laevis*. Calculations were made for each value of α starting from 0 and increasing at steps of 0.001 up to a value of 0.2.
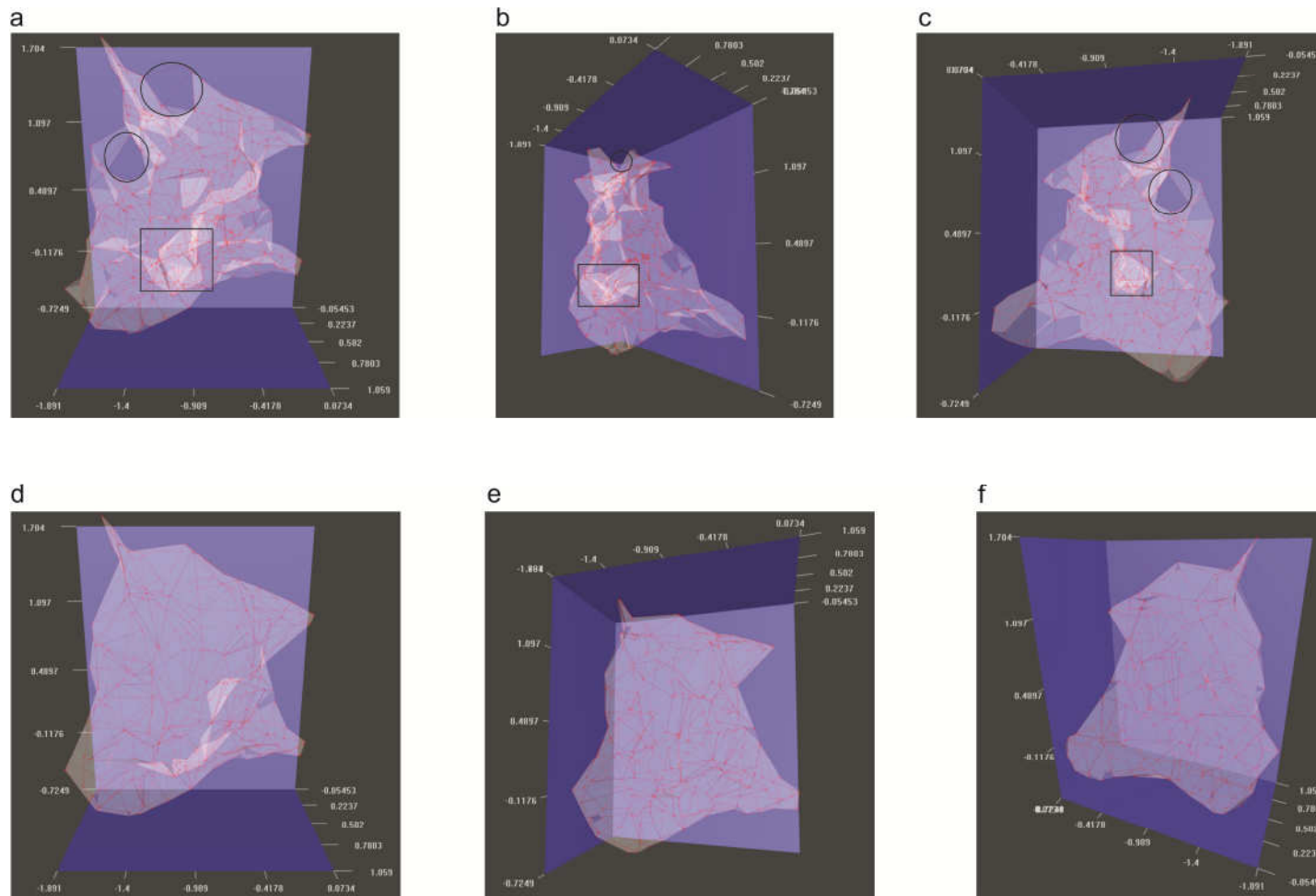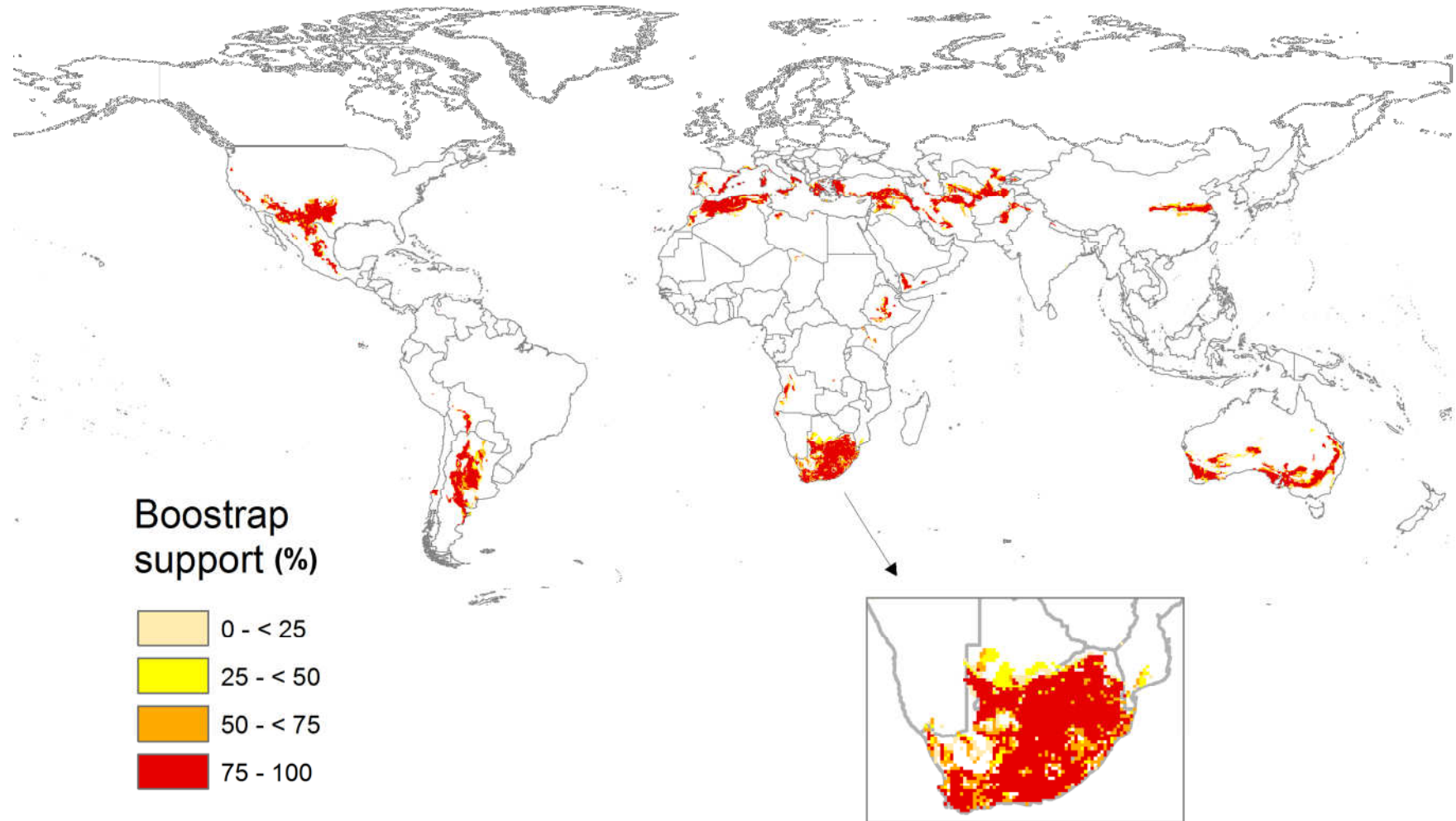
Fig. A2. Visual comparison between an alpha-shape containing unfilled spaces (fully enclosed inside the alpha-shape marked with a rectangle or accessible from the outside marked with a circle) (a-c) and the minimum bounding envelope for the same set of data points (d-f). Note that fully enclosed unfilled spaces remain visible regardless of the viewpoint used.
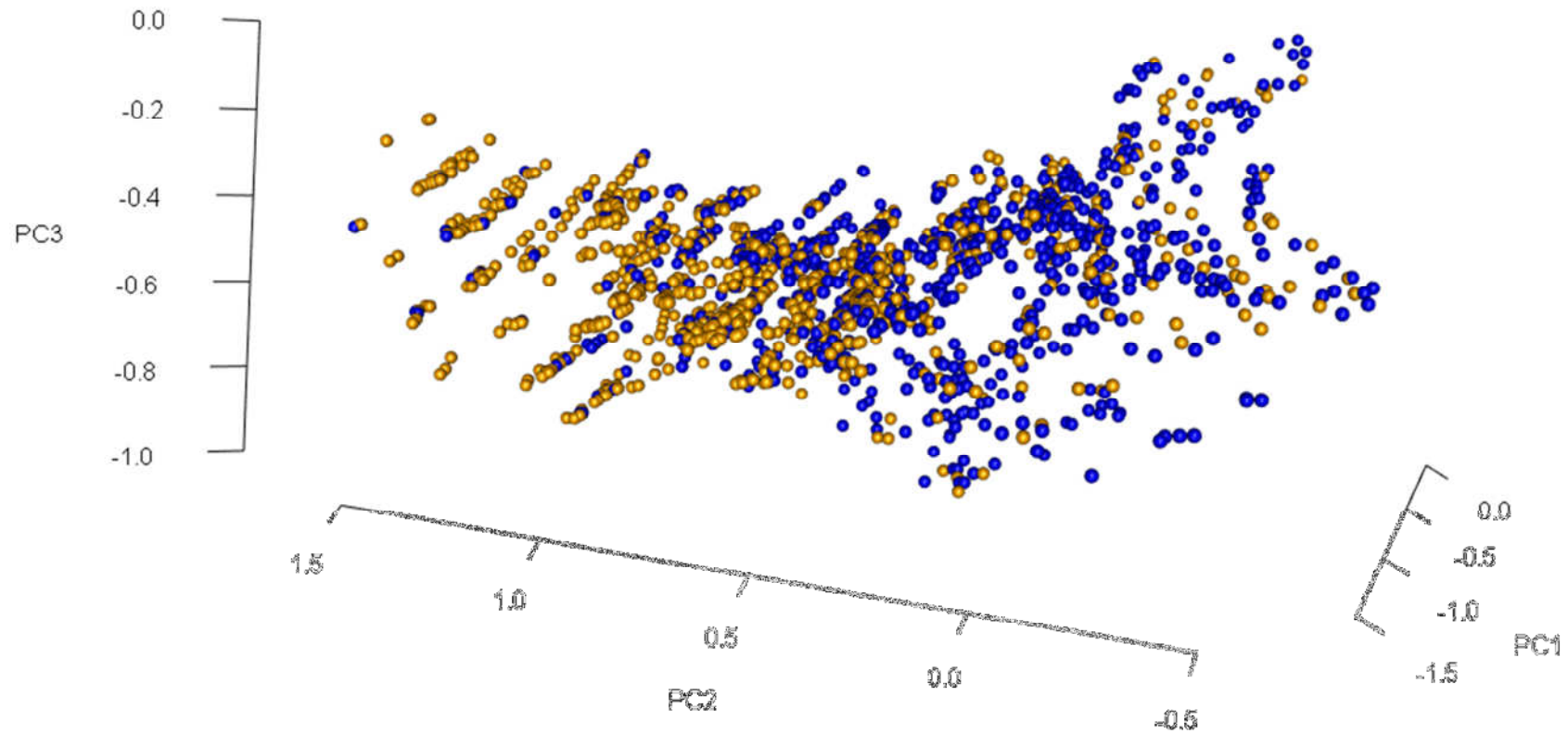
Fig. A3. Presences (blue) and absences (orange) of *Xenopus laevis* in the climatic space. This climatic space is defined by the three main axes of a principal components analysis which together summarize 95.3% of the total variance of six climatic variables: mean temperature of the coldest month; mean temperature of the warmest month; mean number of frost days; mean total annual precipitation; precipitation seasonality and mean number of wet days.
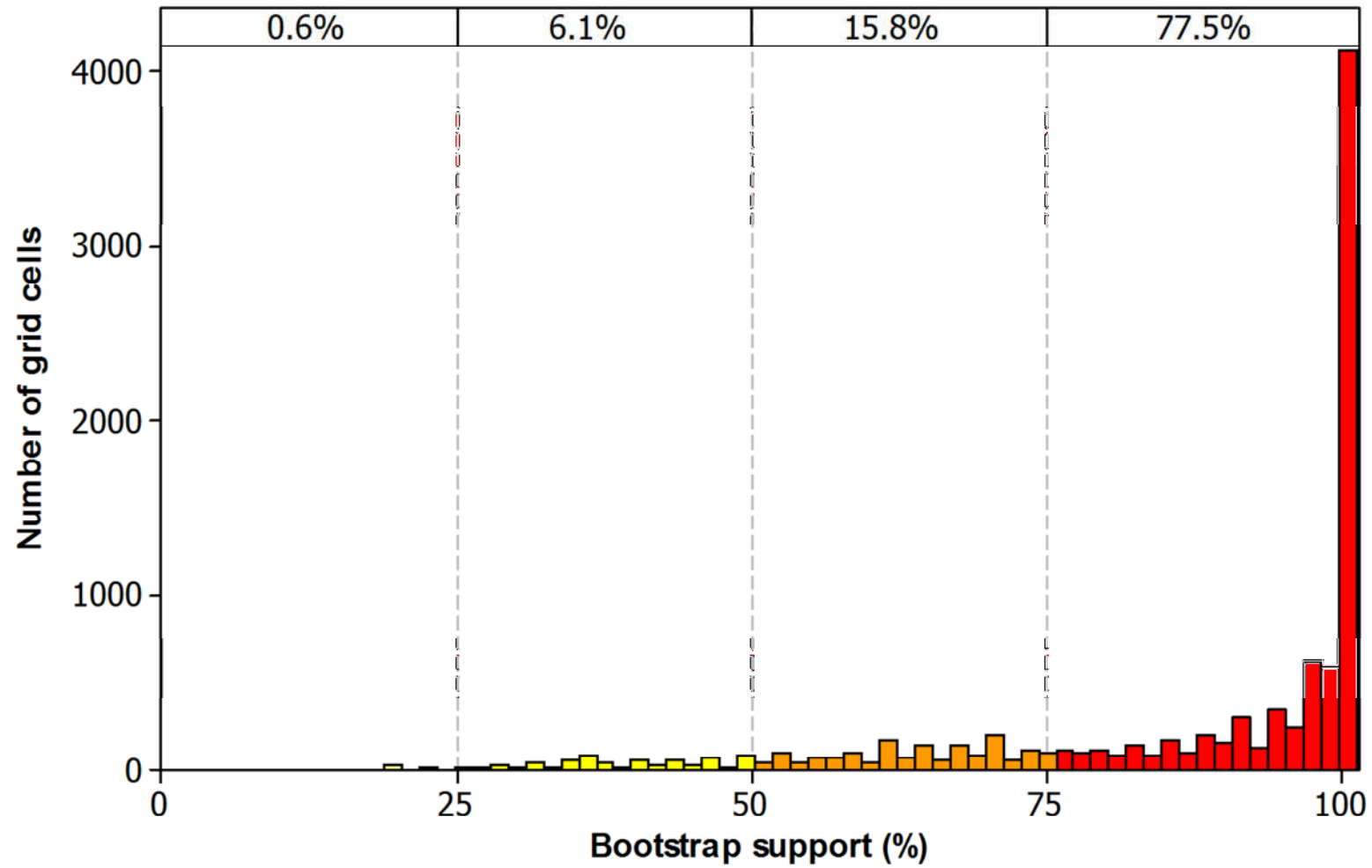
Fig. A4. Histogram of bootstrap support values for the potential range of *Xenopus laevis* predicted by the minimum bounding envelope.

Fig. A5. Bootstrap support values for the potential range of *Xenopus laevis* predicted by the minimum bounding envelope.