Supplementary material 1

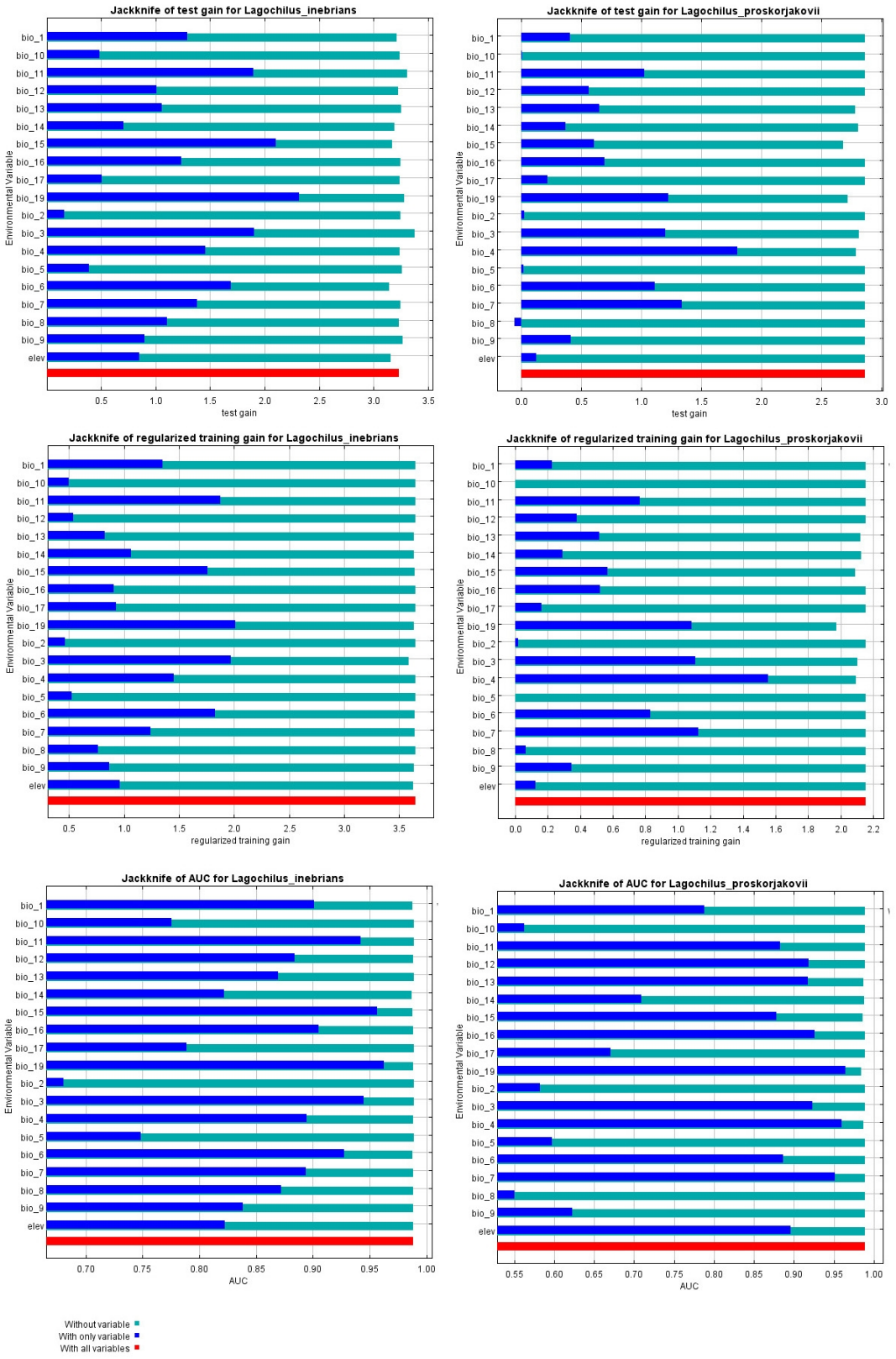


Figure S1. Jackknife test of variable importance for the MaxEnt models of *Lagochilus inebrians* and *Lagochilus proskorjakovii*. The test evaluates the contribution of each environmental variable to the model performance. Blue bars represent the model gain when the variable is used in isolation, turquoise bars show the gain when the variable is omitted, and the red bar represents the model using all variables.

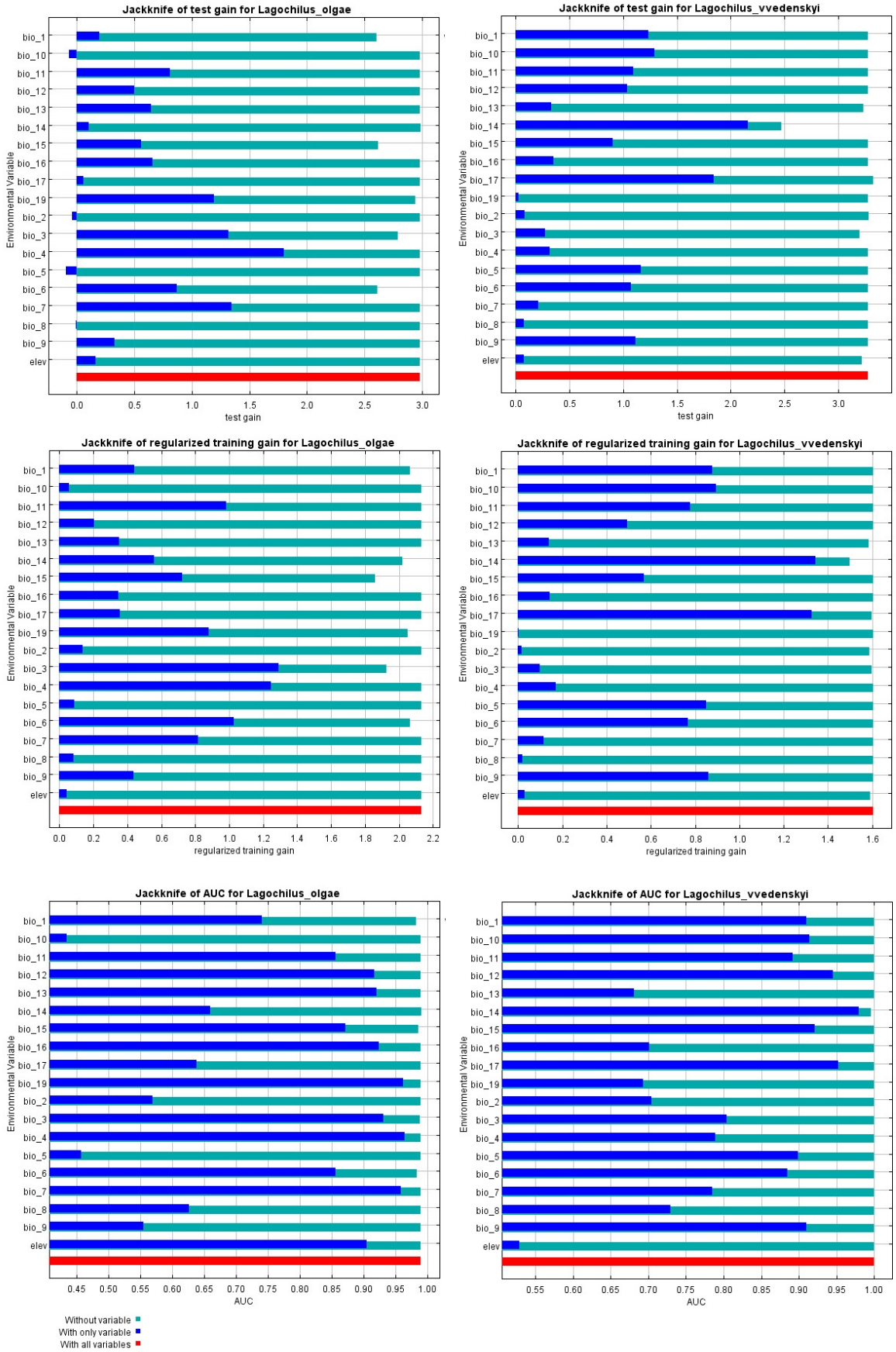


Figure S2. Jackknife test of variable importance for the MaxEnt models of *Lagochilus olgae* and *Lagochilus vvedenskyi*. The test illustrates the relative importance of environmental predictors influencing habitat suitability. Blue bars indicate the gain when the variable is used alone, turquoise bars represent the gain without that variable, and the red bar corresponds to the model using all variables.

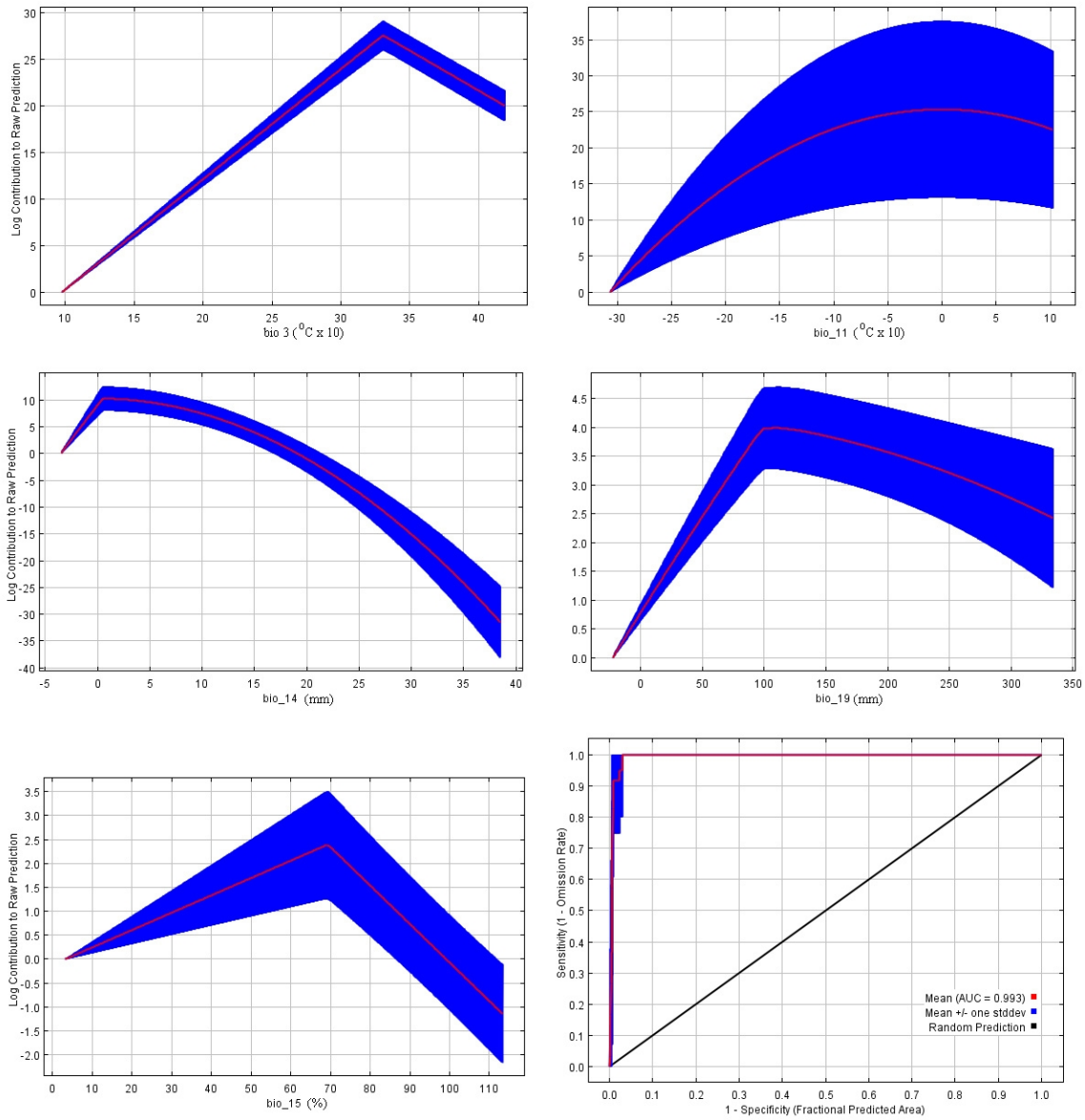


Figure S3. Response curves of key environmental variables and model performance for *Lagochilus inebrians* under current climatic conditions (1970–2000). The plots illustrate the relationships between habitat suitability and the most influential bioclimatic variables (bio3, bio11, bio14, bio19, and bio15) derived from the MaxEnt model. Red lines indicate the mean response across replicate runs, while blue shaded areas represent ±1 standard deviation. The receiver operating characteristic (ROC) curve demonstrates high predictive performance of the model, with an AUC value of 0.993, indicating excellent discrimination between suitable and unsuitable habitats

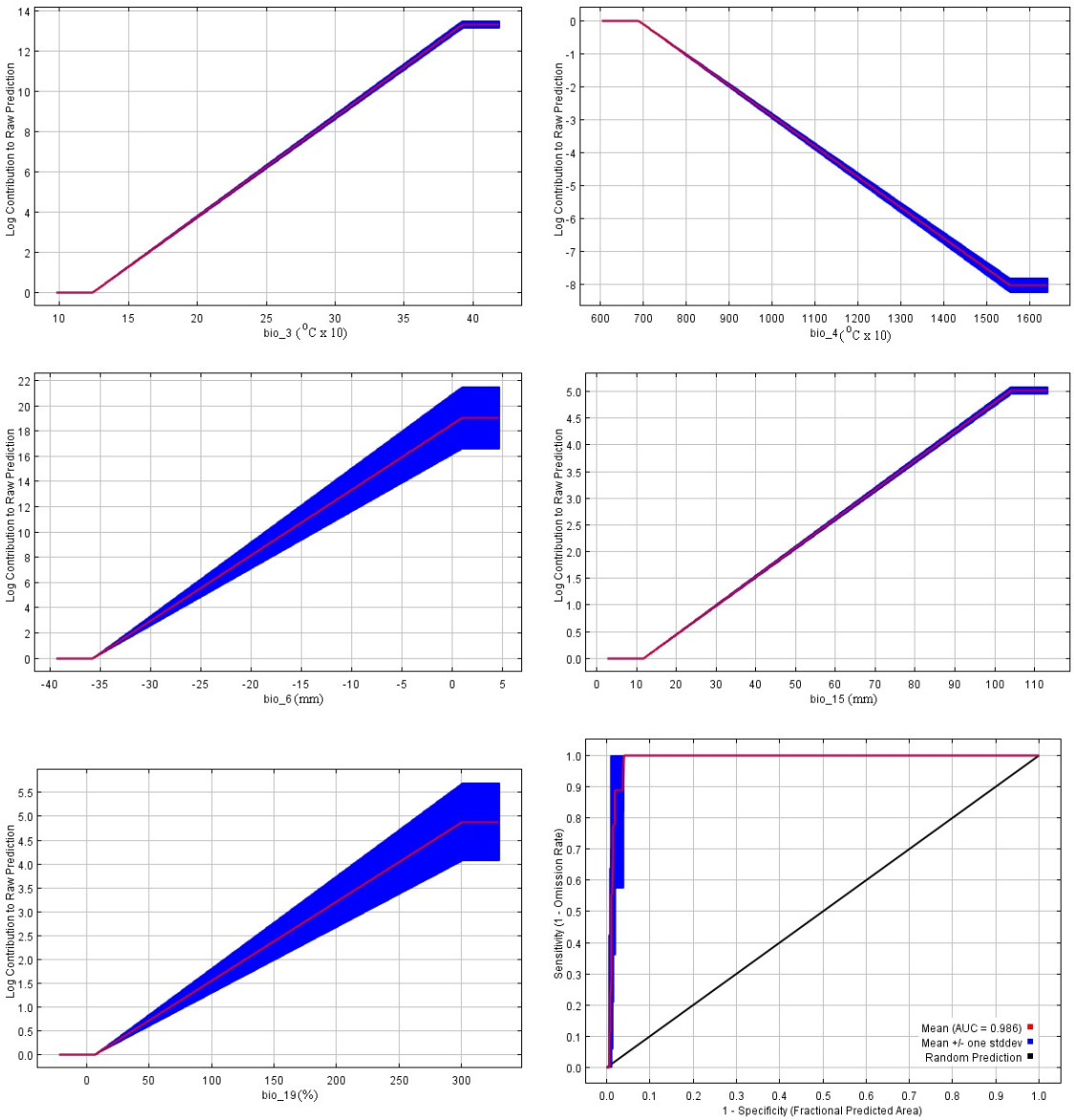


Figure S4. Response curves of key environmental variables and model performance for *Lagochilus olgae* under current climatic conditions (1970–2000). The response curves illustrate the effects of the most influential bioclimatic variables (bio3, bio4, bio6, bio15, and bio19) on habitat suitability predicted by the MaxEnt model. Red lines represent the mean response across replicate runs, while blue shaded areas indicate ±1 standard deviation. The receiver operating characteristic (ROC) curve shows high predictive accuracy, with an AUC value of 0.986, confirming the robustness of the model for this narrowly distributed endemic species.

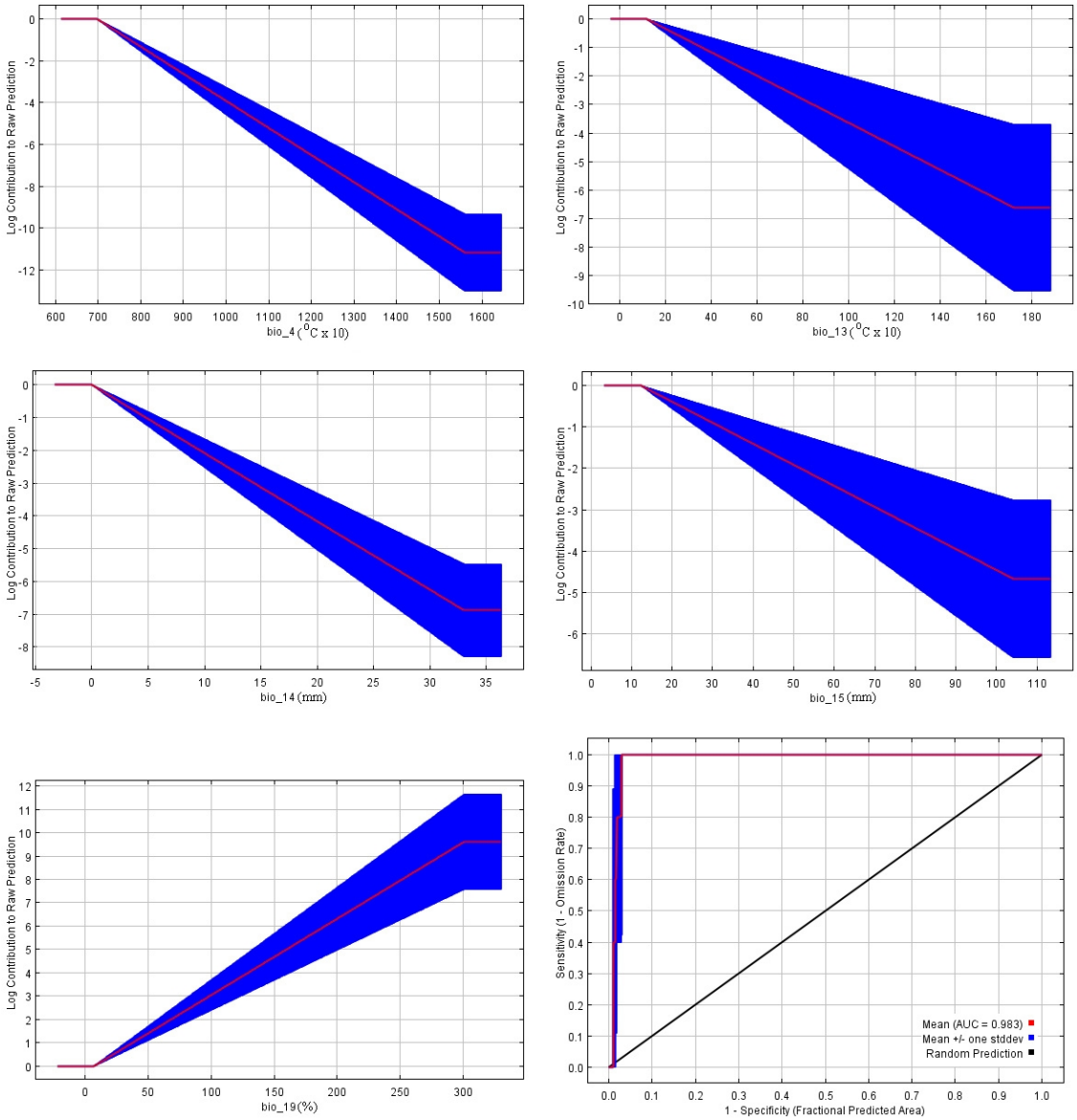


Figure S5. Response curves of key environmental variables and model performance for *Lagochilus proskorjakovii* under current climatic conditions (1970–2000). The response curves depict the relationships between habitat suitability and the most influential bioclimatic variables (bio4, bio13, bio14, bio15, and bio19) derived from the MaxEnt model. Red lines represent the mean response across replicate runs, whereas blue shaded areas indicate ±1 standard deviation. The receiver operating characteristic (ROC) curve demonstrates excellent predictive performance, with a mean AUC value of 0.983, supporting the reliability of the model for this narrowly endemic species.

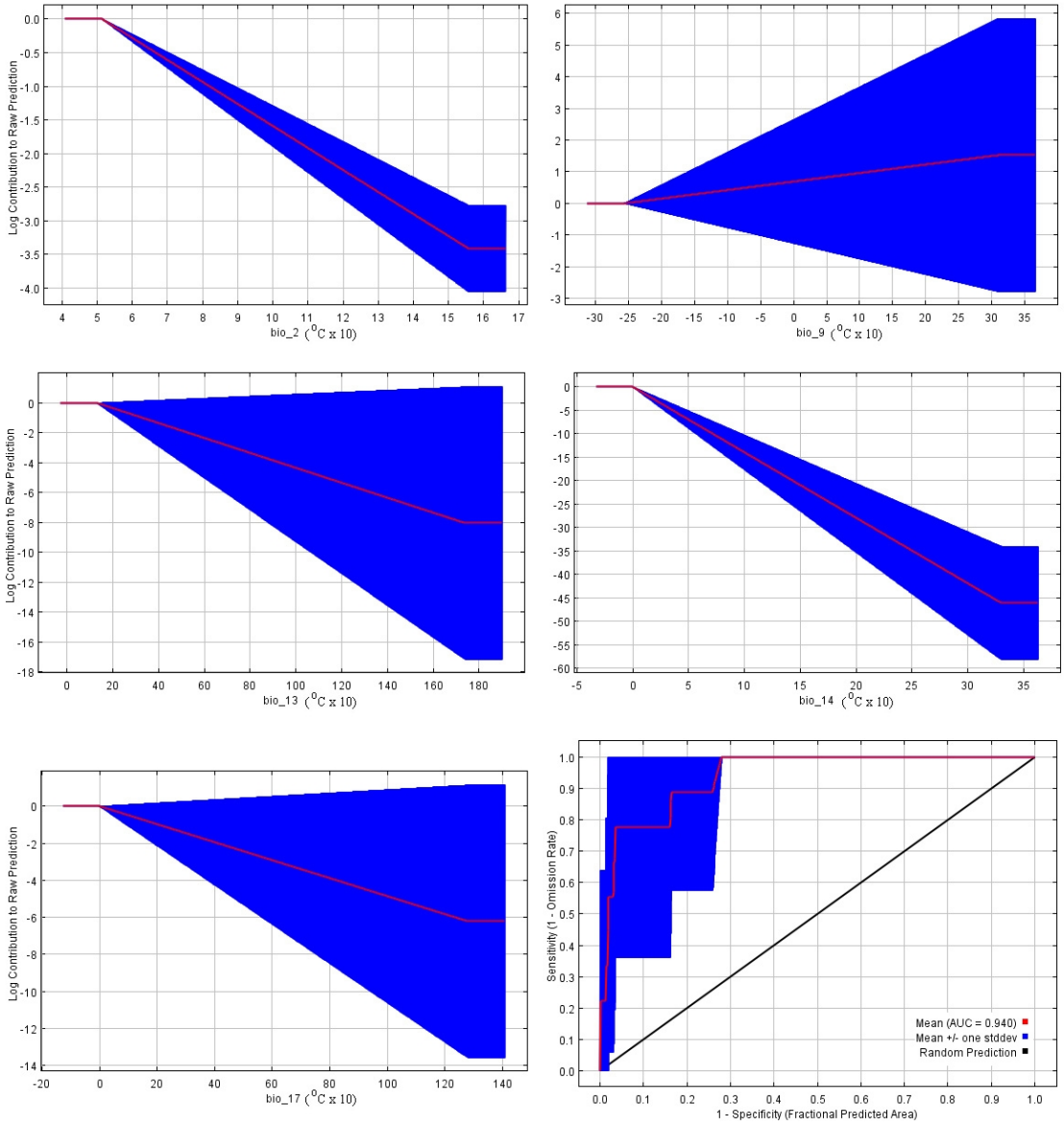


Figure S6. Response curves of key environmental variables and model performance for *Lagochilus vvedenskyi* under current climatic conditions (1970–2000). The response curves illustrate the effects of the most influential bioclimatic variables (bio2, bio9, bio13, bio14, and bio17) on habitat suitability as estimated by the MaxEnt model. Red lines represent mean responses across replicate runs, while blue shaded areas indicate ±1 standard deviation. The receiver operating characteristic (ROC) curve indicates high predictive accuracy, with a mean AUC value of 0.940, confirming the robustness of the model for this arid-zone endemic species.

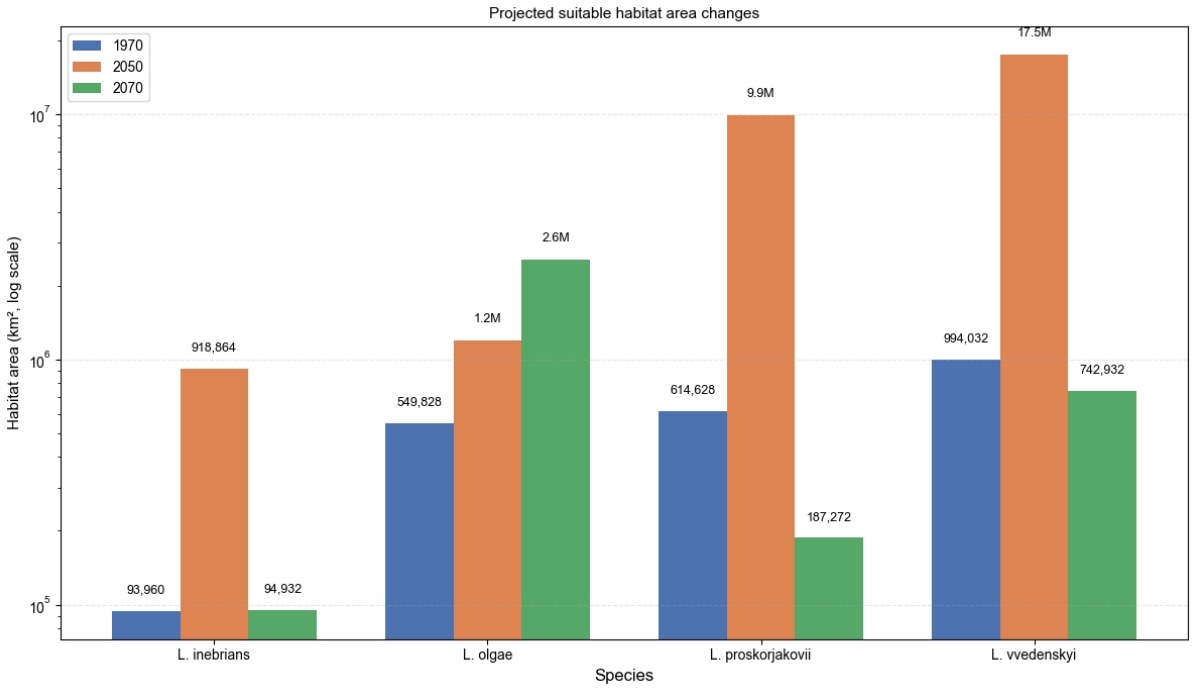


Figure S7. Projected changes in suitable habitat area (km², log scale) for four Lagochilus species under current (1970–2000) and future climatic conditions (2050 and 2070; SSP245 scenario). The bar chart illustrates species-specific trends in habitat expansion or contraction. While *L. olgae* shows a progressive increase in suitable area toward 2070, *L. proskorjakovii* and *L. vvedenskyi* exhibit strong expansion under the 2050 scenario followed by contraction by 2070. In contrast, *L. inebrians* demonstrates high temporal variability with a marked increase in 2050 and a return to near-current levels by 2070, indicating potential instability of its climatic niche under future conditions.