The following supplement accompanies the article

Projected climate change impacts on upland heaths in Ireland

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Supplement 1. Baseline climate and climate change (AIB scenario) data range used for the modelling, and bioclimatic envelope model results: predictions maps for each of the individual models implemented in the BIOMOD algorithm compared to the observed distribution of Wet and Alpine and Boreal Heath

Table S1: The baseline climate (1961 – 1990) and climate change (2031-2060) data range used in current study

Variables (units)	Baseline climate			Climate change data		
	Max	Min	Mean	Max	Min	Mean
Annual temperature range	18.77	14.11	16.99	24.38	15.48	19.89
Mean annual temperature (°C)	10.44	6.12	8.92	11.76	7.64	10.49
Mean summer temperature (June-Aug) (°C)	15.00	11.44	13.81	17.07	12.39	16.04
Mean temperature - warmest month (July) (°C)	19.63	15.77	18.36	18.36	12.90	17.20
Mean winter temperature (Dec-Feb) (°C)	6.74	1.45	4.62	7.88	3.07	6.15
Net annual precipitation (mm)	2114.1	691.93	1254.1	2047.9	528.21	1182.8
Mean summer precipitation (June-Aug) (mm)	127.90	49.64	83.84	123.88	26.11	61.10
Mean winter precipitation (Dec-Feb) (mm)	224.99	63.82	124.10	244.34	62.34	137.67

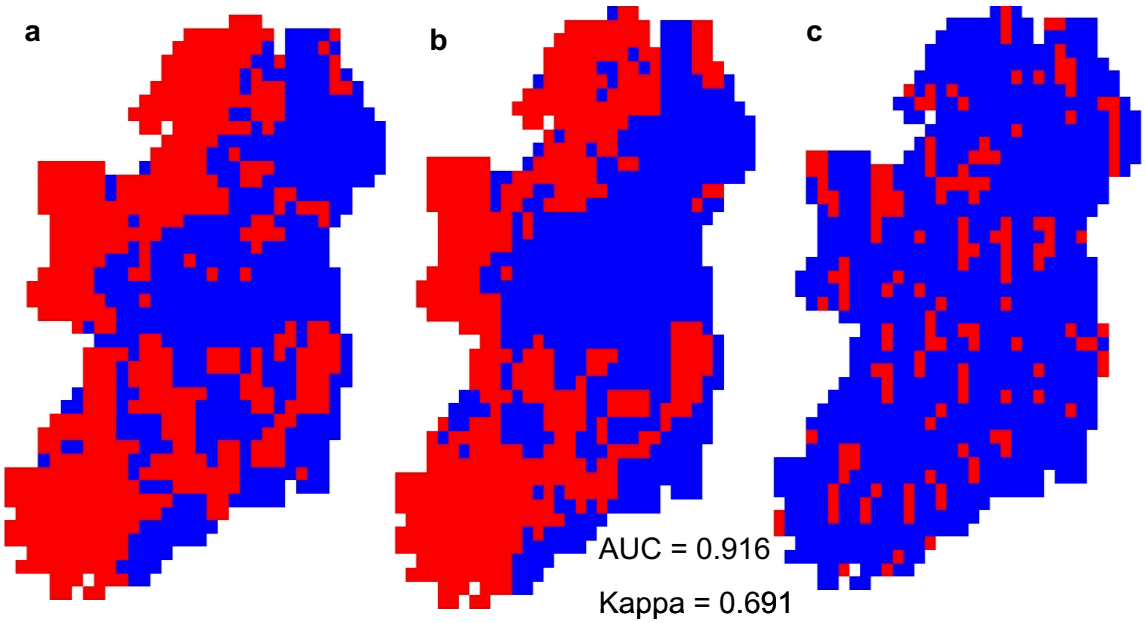

Figure S1: Observed and predicted occurrence (red grid cells) and absence (blue) are shown throughout. (a) Observed distribution of wet heath based on National Parks and Wildlife Service data (Ireland) and Joint Nature Conservancy Council data (Northern Ireland). (b) BIOMOD specified GLM predicted distribution for the baseline period; AUC = area under the curve, Kappa = Cohen's Kappa statistic. (c) Change in bioclimatic space for wet heath according to the A1B climate scenario for 2031–2060, predicted with the GLM distribution model for the 10 x 10 km grid.

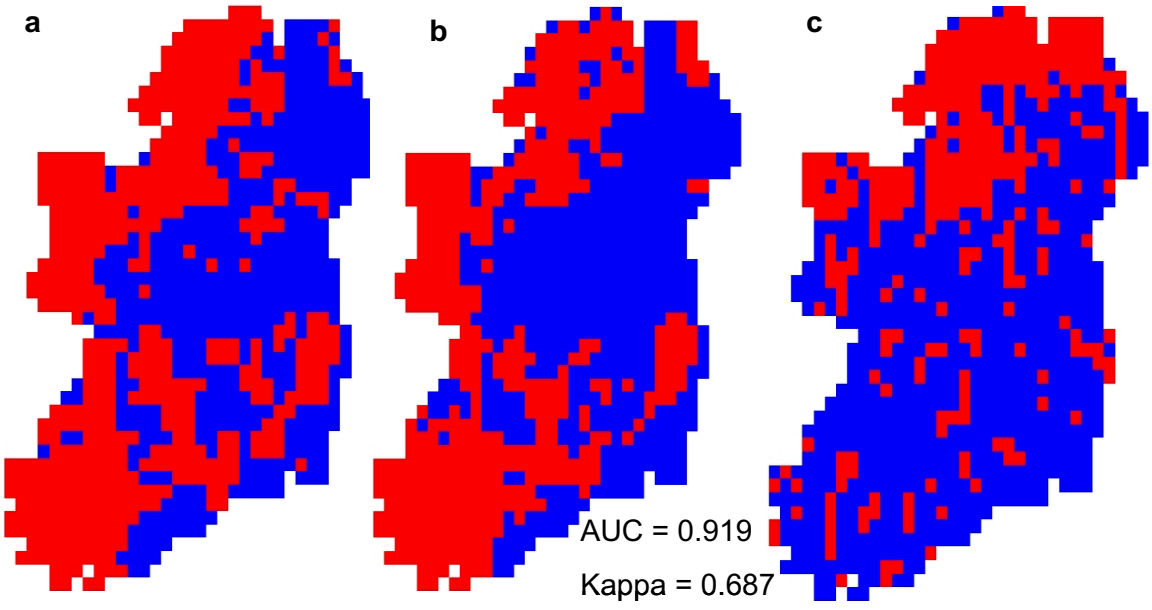

Figure S2: Same as in Fig. S1, but for (b) BIOMOD-specified GAM predicted distribution for the baseline period and (c) change in bioclimatic space projected by the GAM model. GAM: generalised additive model.

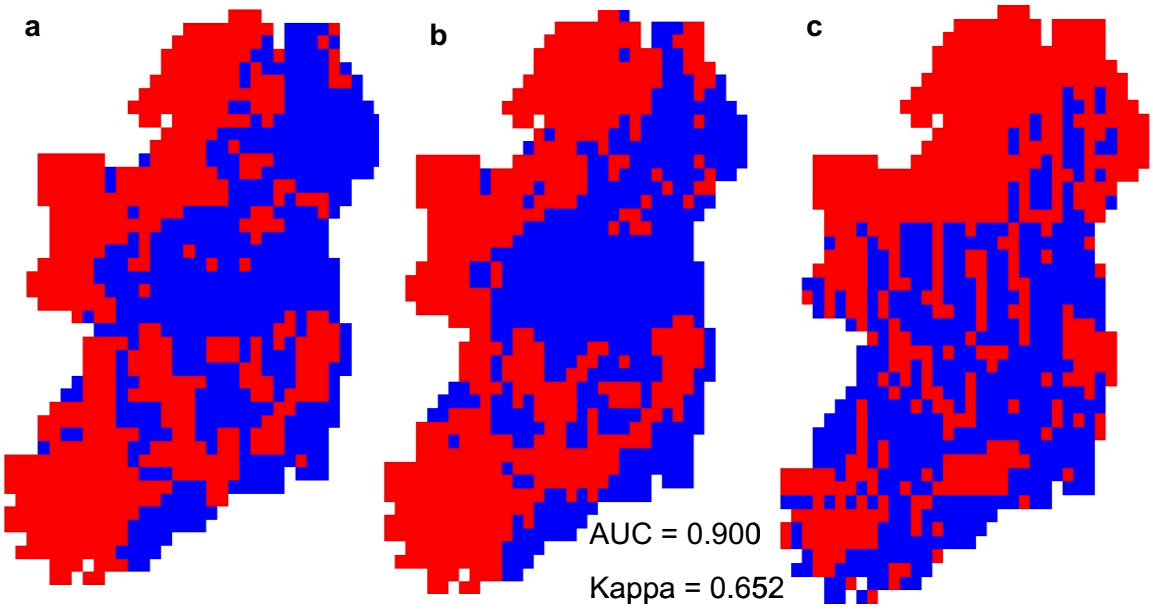

Figure S3: Same as in Fig. S1, but for (b) BIOMOD-specified ANN predicted distribution for the baseline period and (c) change in bioclimatic space projected by the ANN model. ANN: artificial neural network.

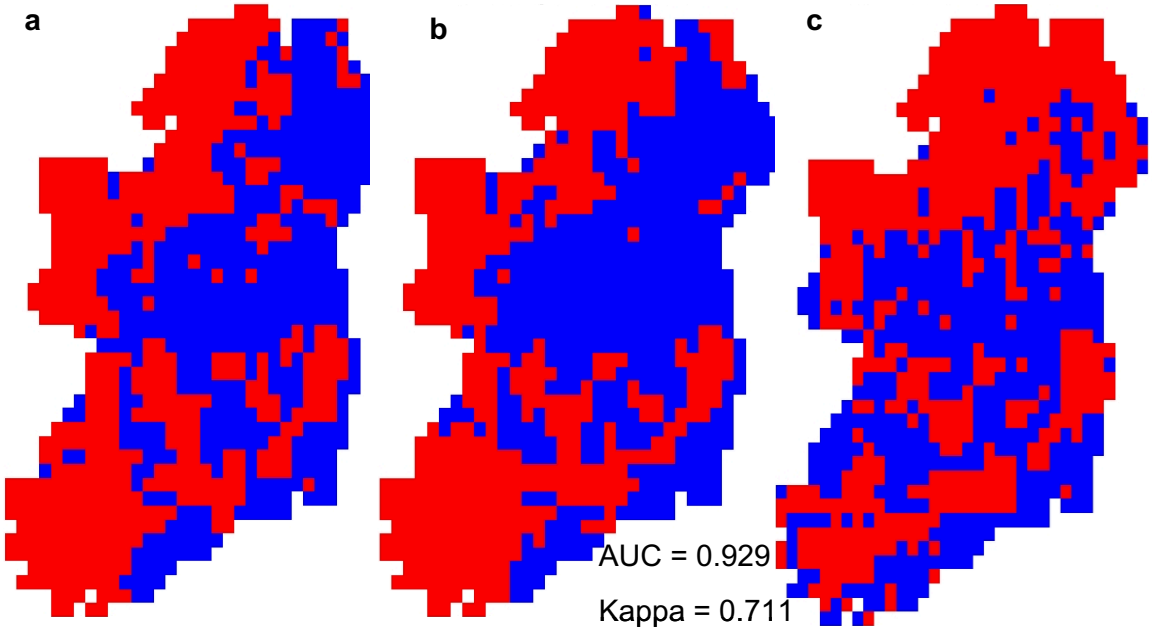

Figure S4: Same as in Fig. S1, but for (b) BIOMOD-specified GBM predicted distribution for the baseline period and (c) change in bioclimatic space projected by the GBM model. GBM: generalised boosting method.

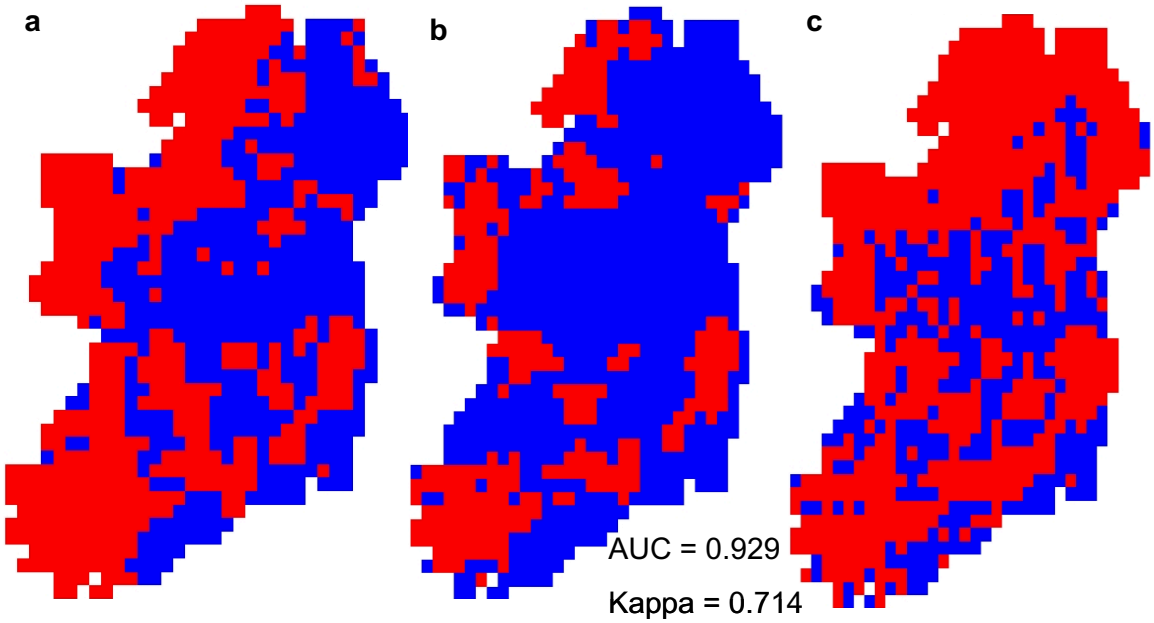

Figure S5: Same as in Fig. S1, but for (b) BIOMOD-specified RF predicted distribution for the baseline period and (c) change in bioclimatic space projected by the RF model. RF: random forest.

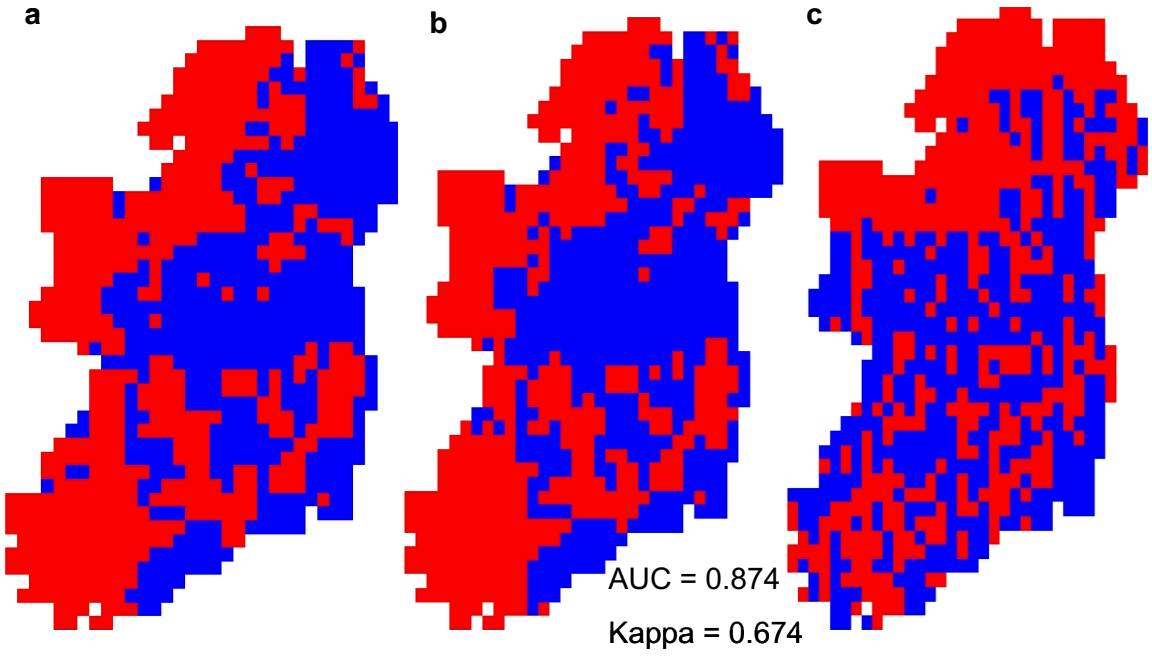

Figure S6: Same as in Fig. S1, but for (b) BIOMOD-specified CTA predicted distribution for the baseline period and (c) change in bioclimatic space projected by the CTA model. CTA: classification tree analysis.

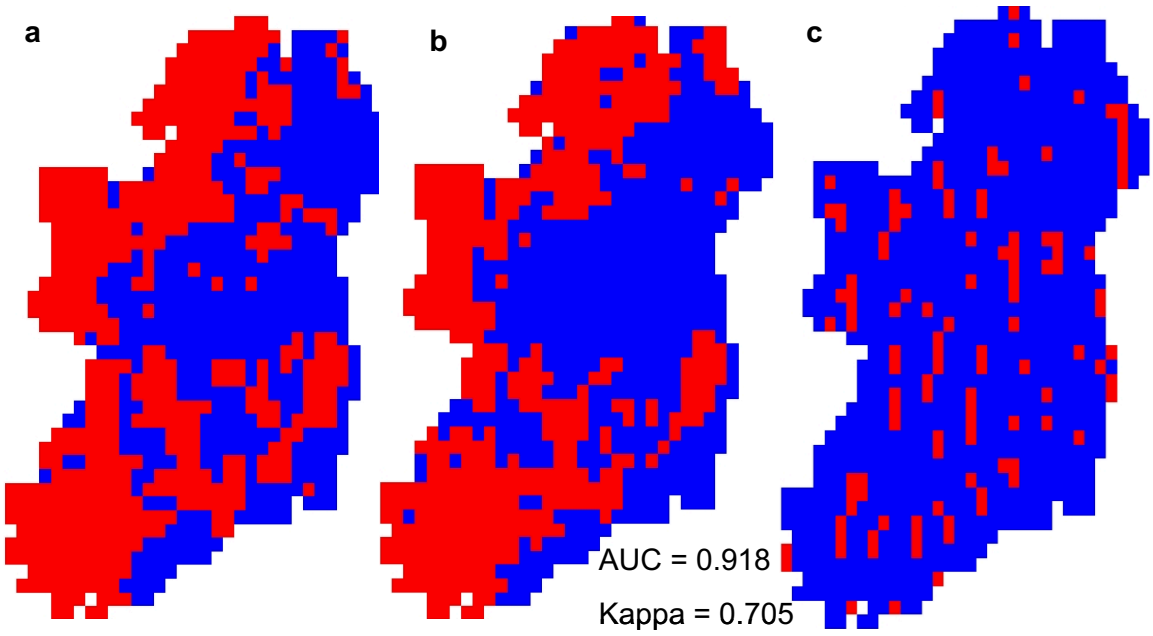

Figure S7: Same as in Fig. S1, but for (b) BIOMOD-specified FDA predicted distribution for the baseline period and (c) change in bioclimatic space projected by the FDA model. FDA: flexible discriminant analysis.

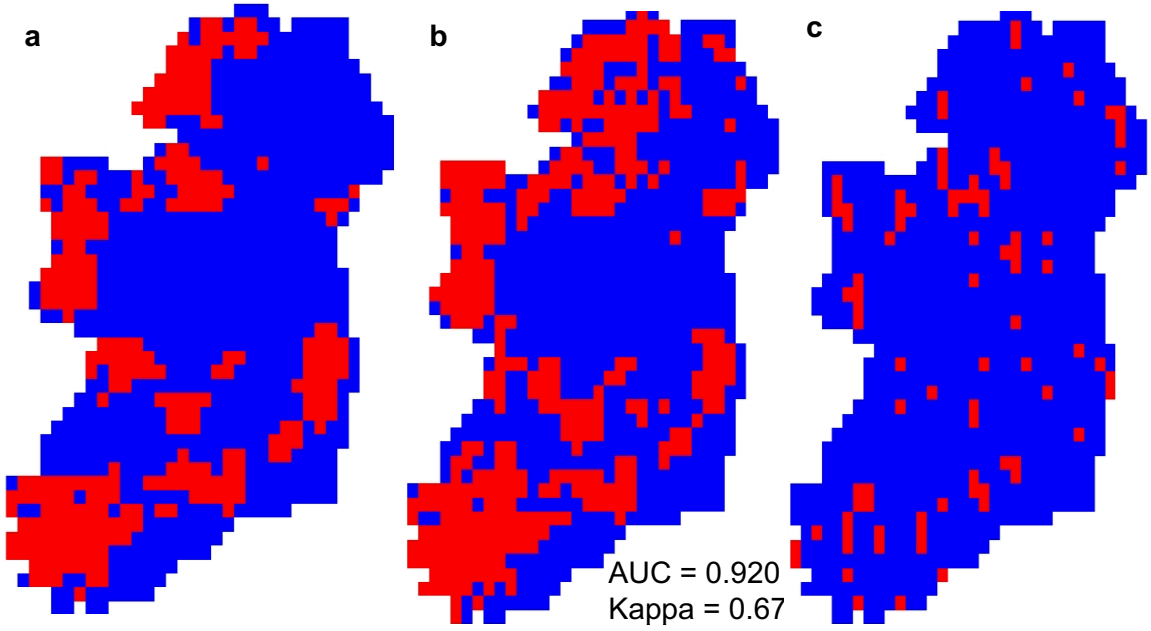

Figure S8: Observed and predicted occurrence (red grid cells) and absence (blue) are shown throughout. (a) Observed distribution of alpine and boreal heath based on National Parks and Wildlife Service data (Ireland) and Joint Nature Conservancy Council data (Northern Ireland). (b) BIOMOD specified GLM predicted distribution for the baseline period; AUC = area under the curve, Kappa = Cohen's Kappa statistic. (c) Change in bioclimatic space for wet heath according to the A1B climate scenario for 2031–2060, predicted with the GLM distribution model for the 10 x 10 km grid.

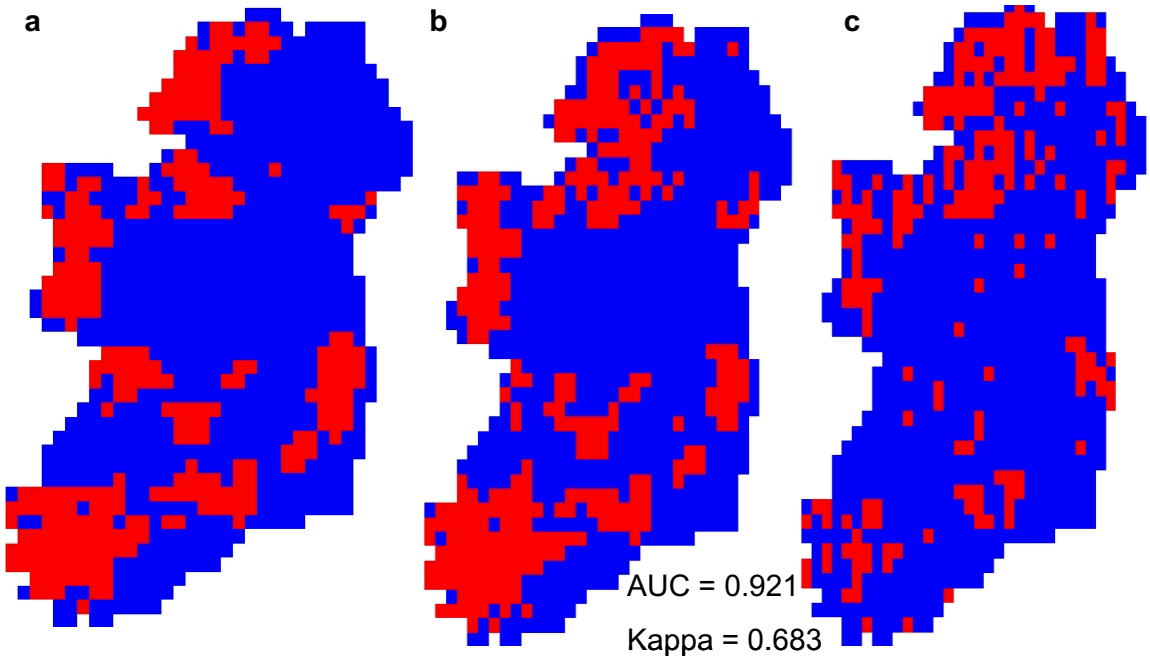

Figure S9: Same as in Fig. S1, but for (b) BIOMOD-specified GAM predicted distribution for the baseline period and (c) change in bioclimatic space projected by the GAM model. GAM: generalised additive model.

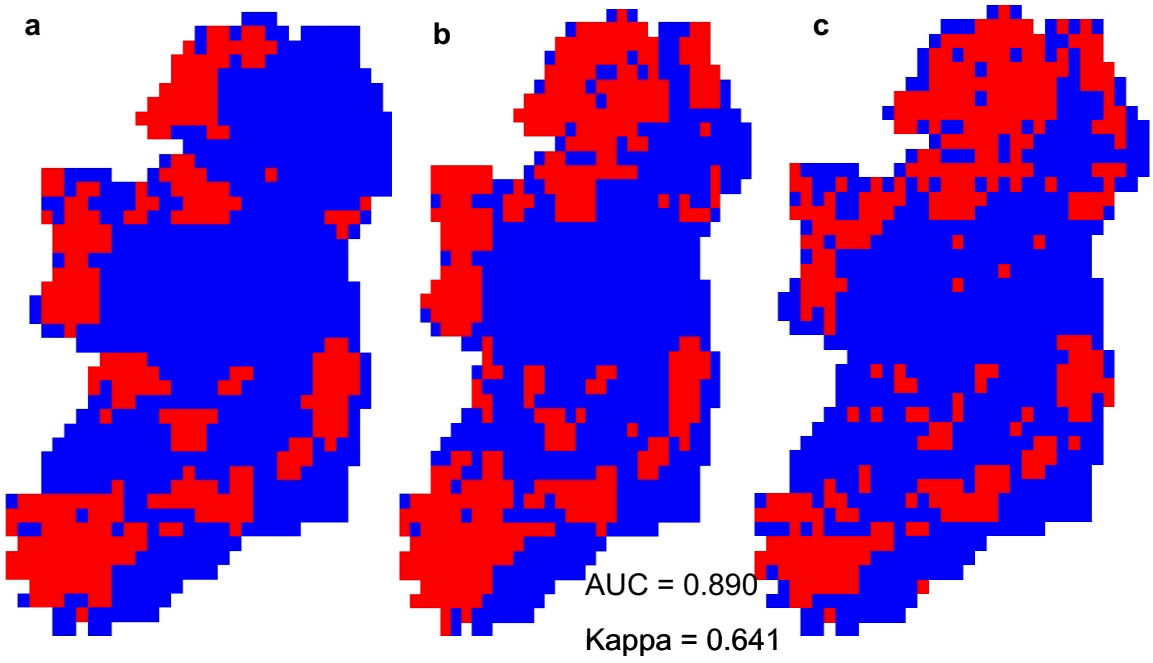

Figure S10: Same as in Fig. S1, but for (b) BIOMOD-specified ANN predicted distribution for the baseline period and (c) change in bioclimatic space projected by the ANN model. ANN: artificial neural network.

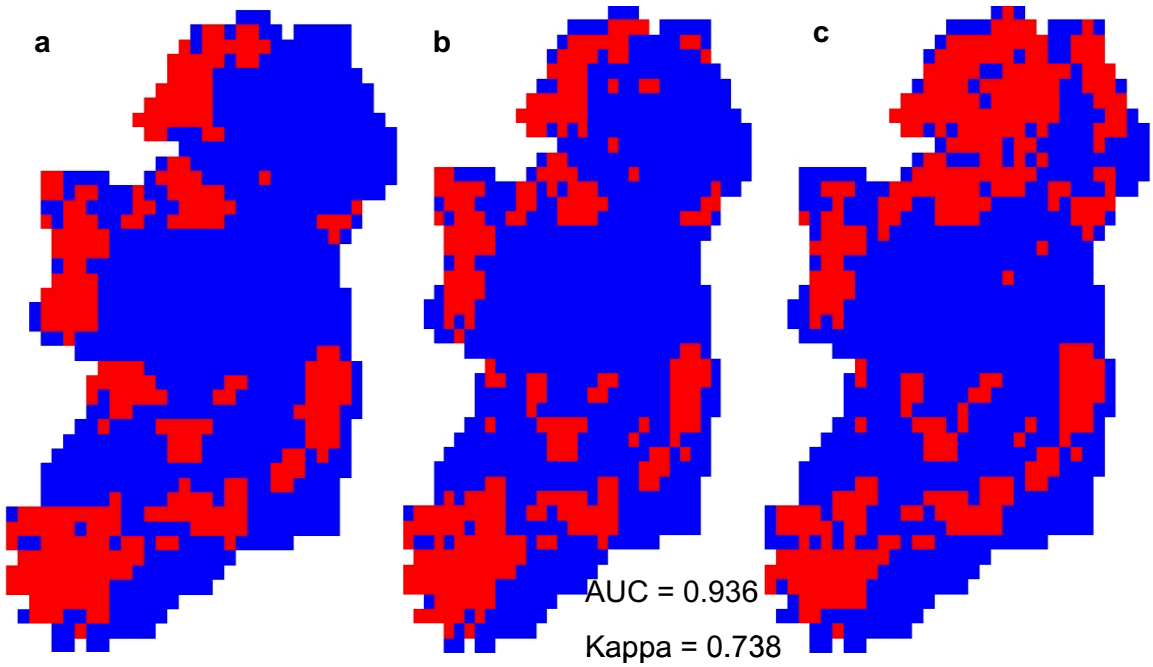

Figure S11: Same as in Fig. S1, but for (b) BIOMOD-specified GBM predicted distribution for the baseline period and (c) change in bioclimatic space projected by the GBM model. GBM: generalised boosting method.

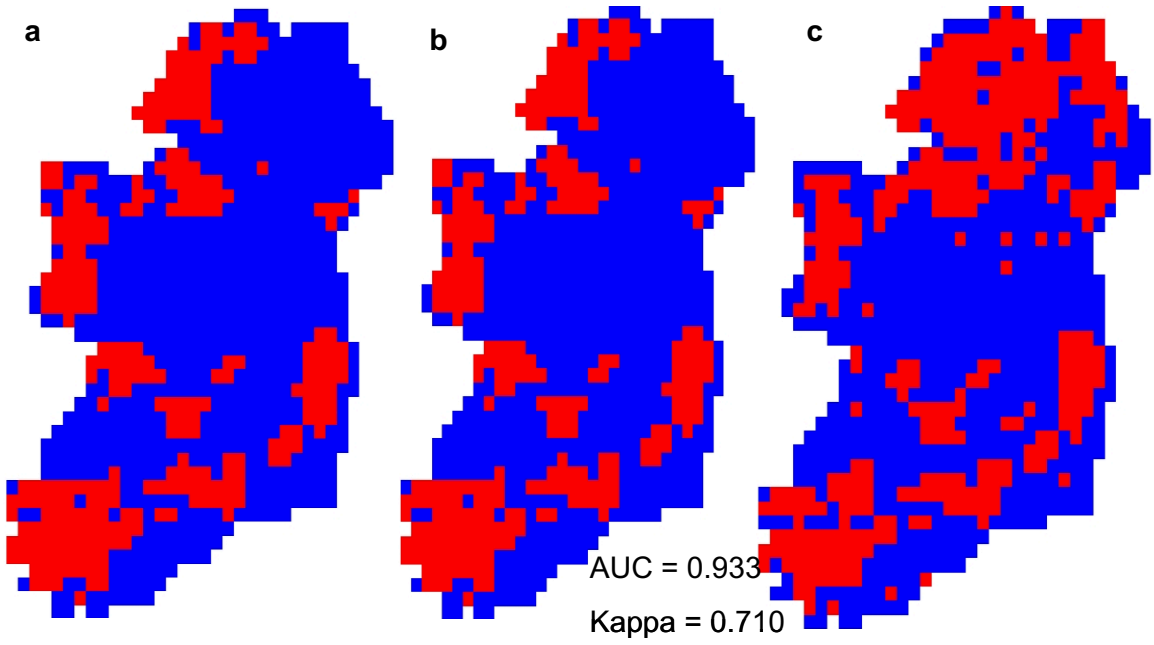

Figure S12: Same as in Fig. S1, but for (b) BIOMOD-specified RF predicted distribution for the baseline period and (c) change in bioclimatic space projected by the RF model. RF: random forest.

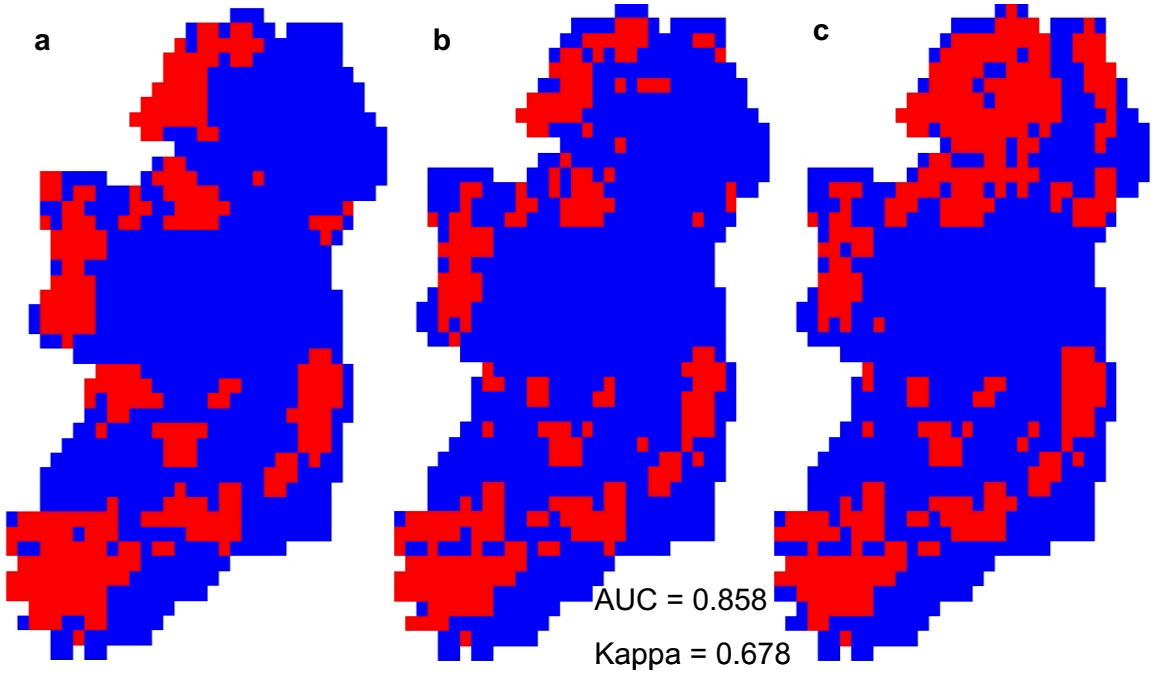

Figure S13: Same as in Fig. S1, but for (b) BIOMOD-specified CTA predicted distribution for the baseline period and (c) change in bioclimatic space projected by the CTA model. CTA: classification tree analysis.

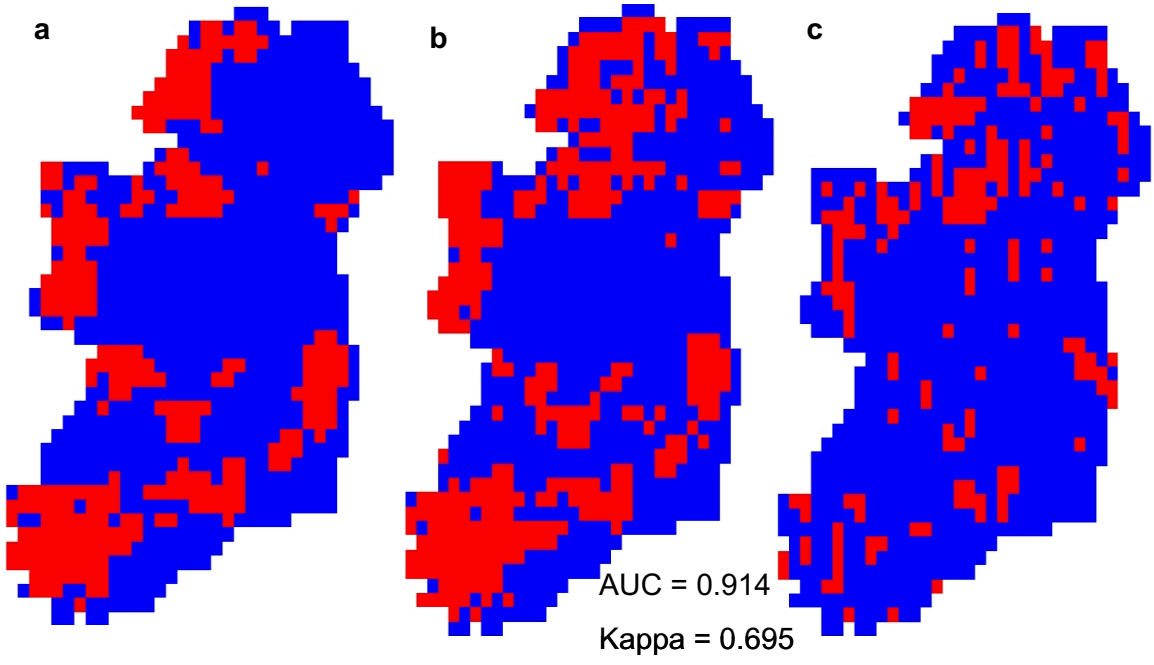

Figure S14: Same as in Fig. S1, but for (b) BIOMOD-specified FDA predicted distribution for the baseline period and (c) change in bioclimatic space projected by the FDA model. FDA: flexible discriminant analysis.