Supplementary Materials

Incorporating time series dynamics into species distribution models

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This file contains the following Supplementary Information:

- **Supporting Figure S1:** Regional comparison of model statics
- **Supporting Figure S2:** Recorded computation times for models across each algorithm

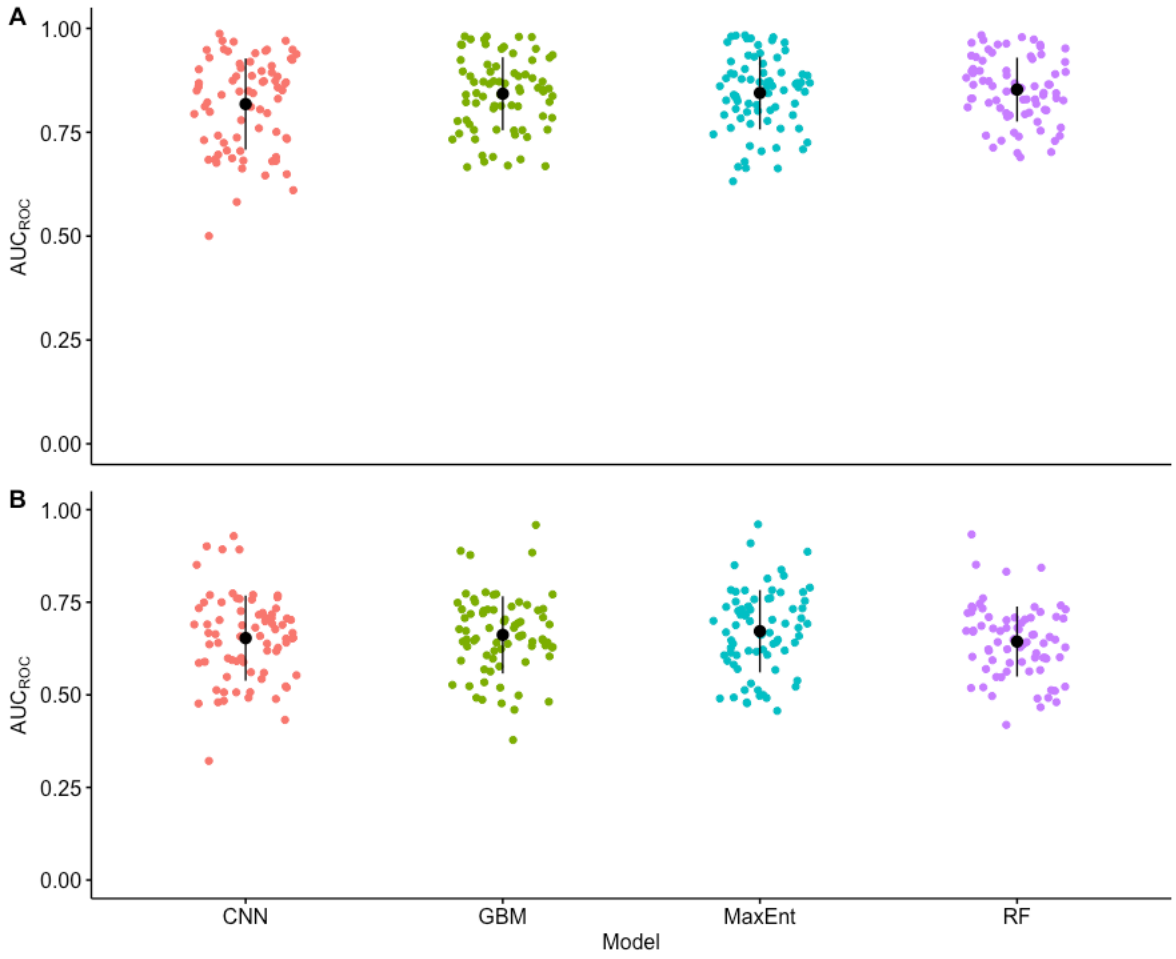

Figure S1 A.) Comparison of averaged area under the receiver operating curve (AUC_{ROC}) scores for Convolutional Neural networks (CNN; $\mu = 0.82$; $\sigma = 0.11$), Gradient Boosting Machines (GBM; $\mu = 0.84$; $\sigma = 0.088$), Maximum Entropy (MaxEnt; $\mu = 0.84$; $\sigma = 0.88$), and Random Forest (RF; $\mu = 0.85$; $\sigma = 0.77$) models when evaluated on presence-background samples. B.) Comparison of AUC_{ROC} scores for models when evaluated on presence-absence survey samples. CNNs scored an average AUC_{ROC} of 0.65 ($\sigma = 0.115$). Similar performances were produced by the conventional methods with MaxEnt scoring the highest average AUC_{ROC} at 0.67 ($\sigma = 0.111$), followed by GBM ($\mu = 0.66$, $\sigma = 0.104$) and RF ($\mu = 0.64$, $\sigma = 0.095$).

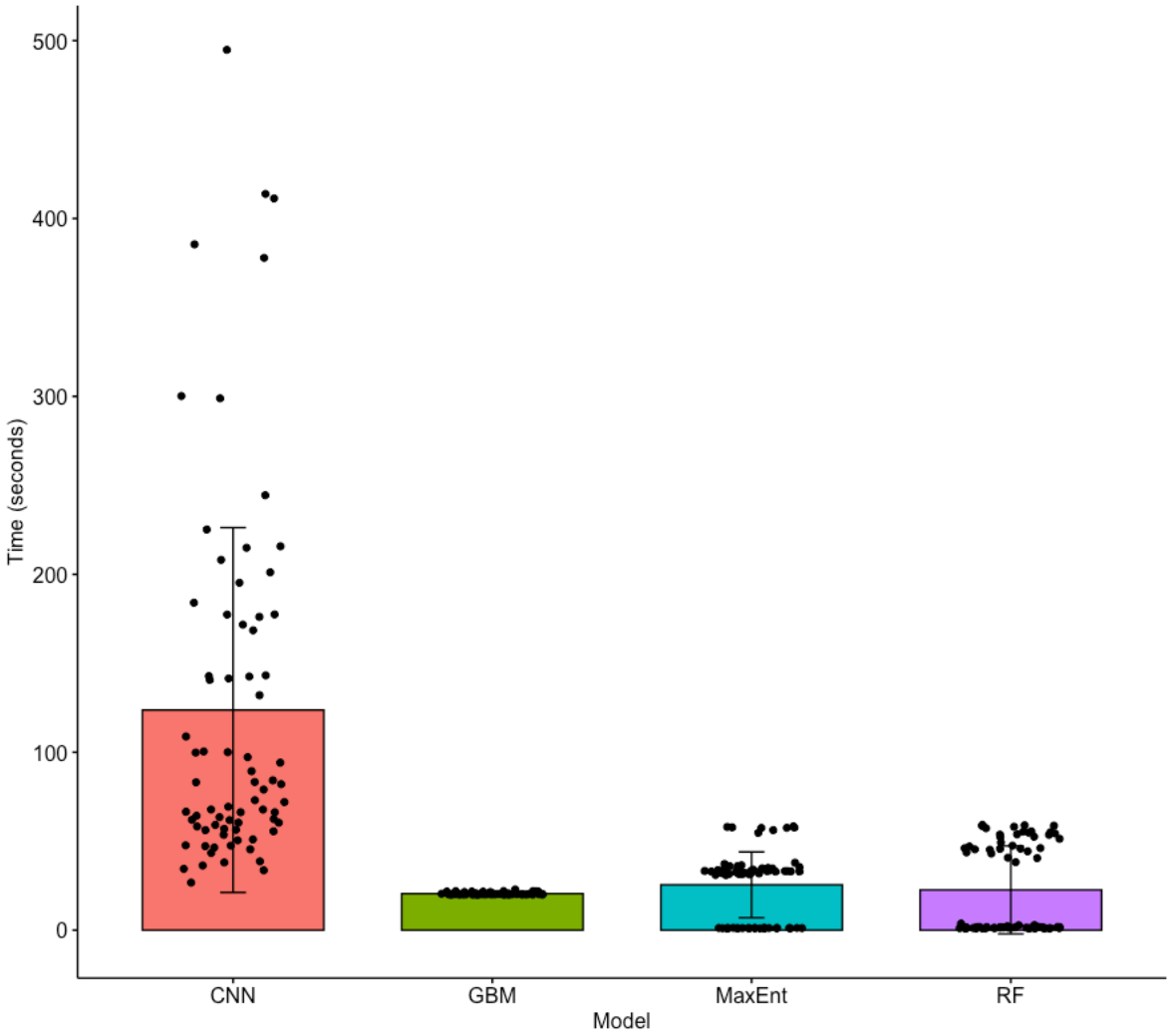

Figure S2 Recorded computation times for models across each algorithm. Note, CNN times only measure the best candidate model and not the entire AutoML process.