

Supplementary information S1

The bioclimatic factors used in the study can be downloaded from this link:

<https://www.worldclim.org/data/worldclim21.html#>

Details about the 19 bioclimatic variables are available on this link:

<https://www.worldclim.org/data/bioclim.html>

Supplementary information S2

The future models (CMIP6) are available on this link:

<https://www.worldclim.org/data/cmip6/cmip6climate.html>

In this study, two future climatic models were used at two Shared Socio-economic Pathways (SSPs): ssp126 and ssp585 for 2050 (2041-2060). 2.5 minutes = 5 Km² spatial distance was used in the study.

(1) BCC-CSM2-MR (Institution ID: BCC)

(2) MRI-ESM2-0 (Institution ID: MRI)

These models (bc was selected to download the 19 bioclimatic variables) are available on:

https://www.worldclim.org/data/cmip6/cmip6_clim2.5m.html

Supplementary Figures (1 to 11)

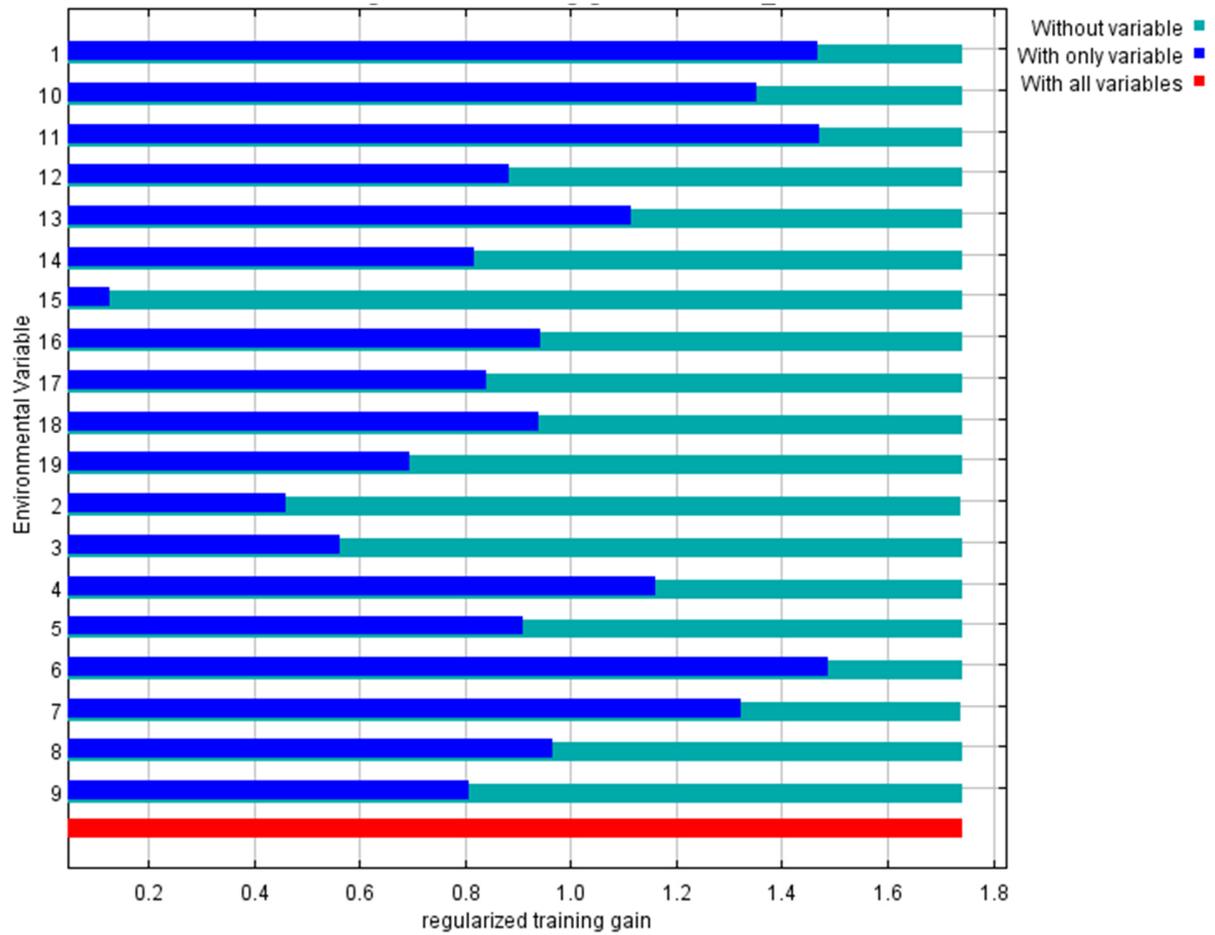


Figure S1. The jackknife test of regularized training gain considering 19 environmental variables.

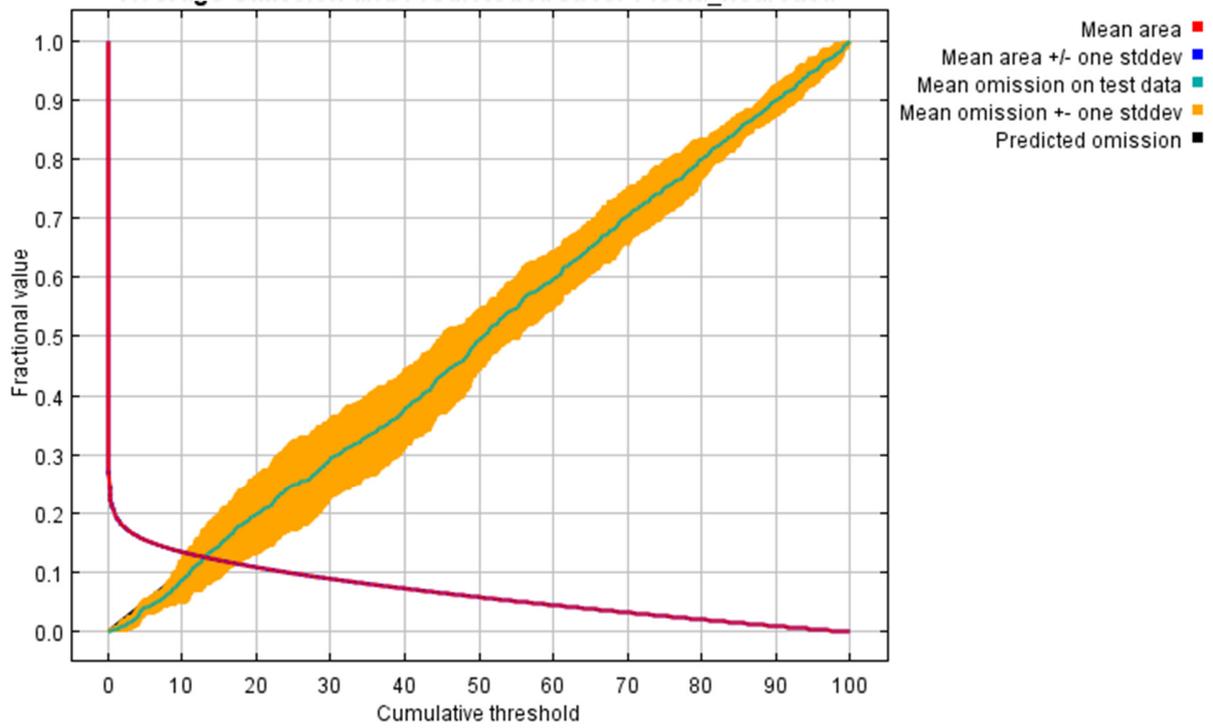


Figure S2. Average omission and predicated area for *Plecia nearctica*.

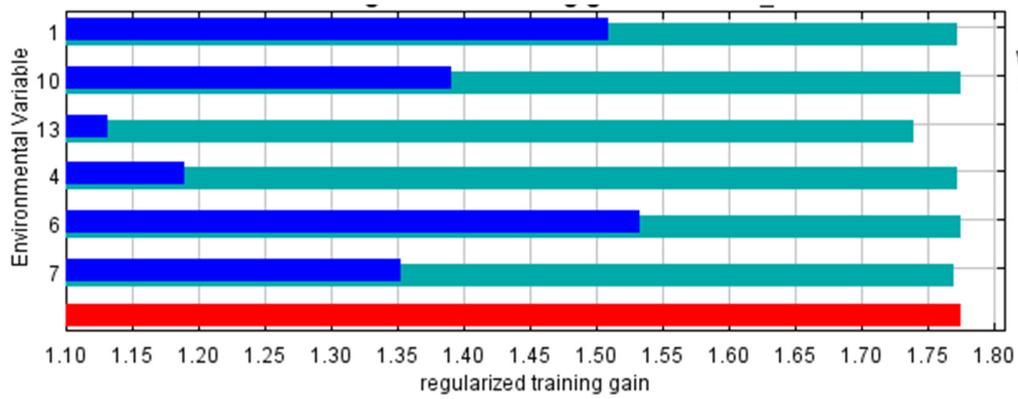


Figure S3. The jackknife of regularized gain for *Plecia nearctica*. 1: Annual mean temperature, 4: Temperature seasonality, 6: Minimum temperature of coldest month, 7: Temperature annual range, 10: Mean temperature of warmest quarter, and 13: Precipitation of wettest month.

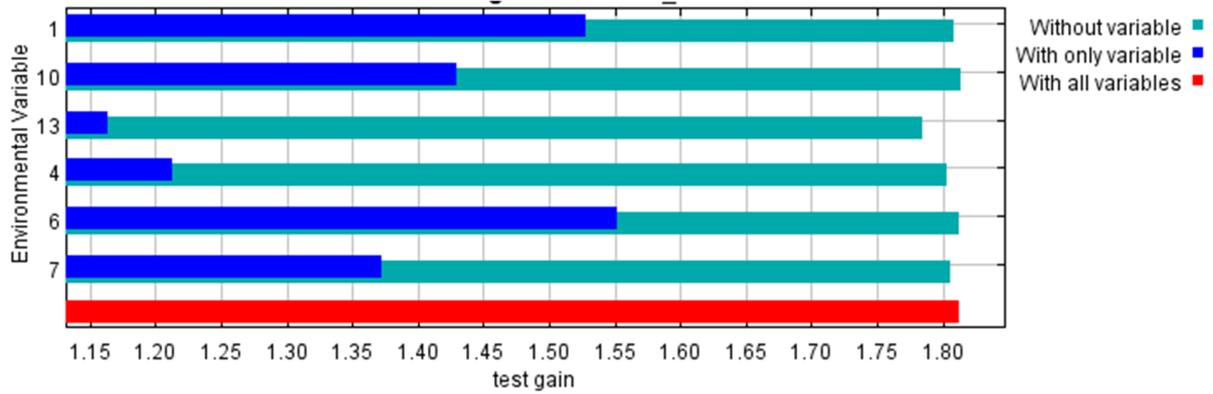


Figure S4. The jackknife of test gain for *Plecia nearctica*. 1: Annual mean temperature, 4: Temperature seasonality, 6: Minimum temperature of coldest month, 7: Temperature annual range, 10: Mean temperature of warmest quarter, and 13: Precipitation of wettest month.

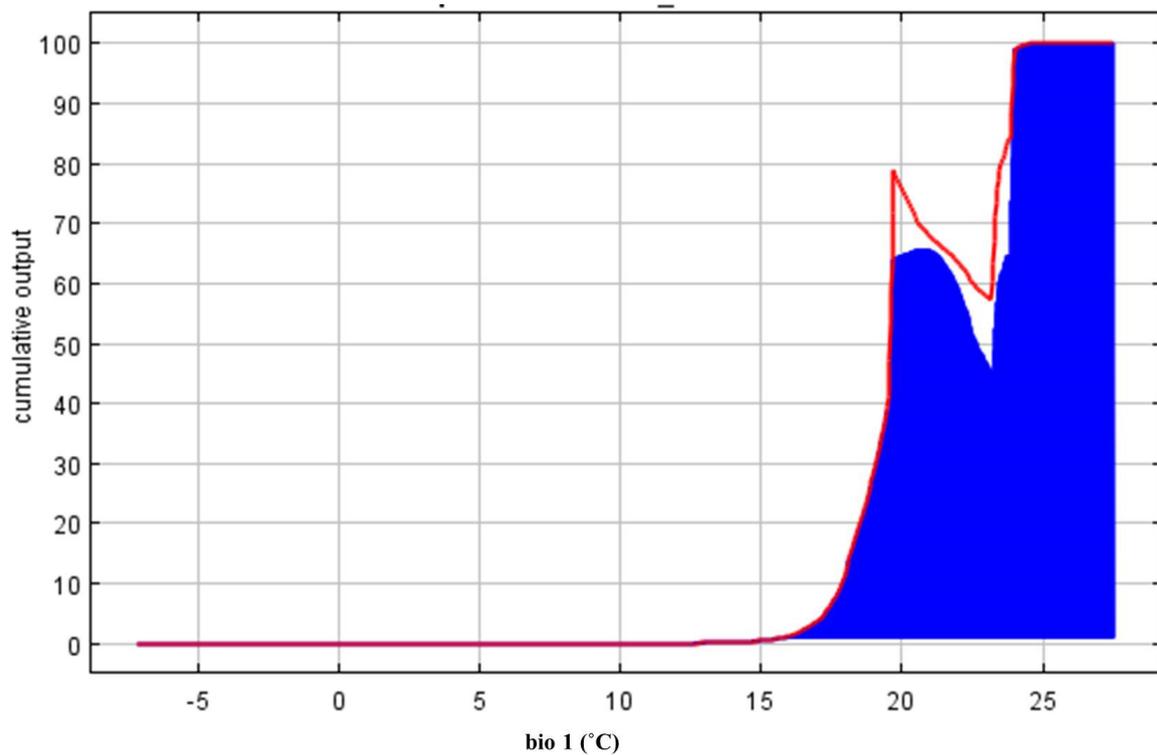


Figure S5. Response curve for Annual Mean Temperature (bio1).

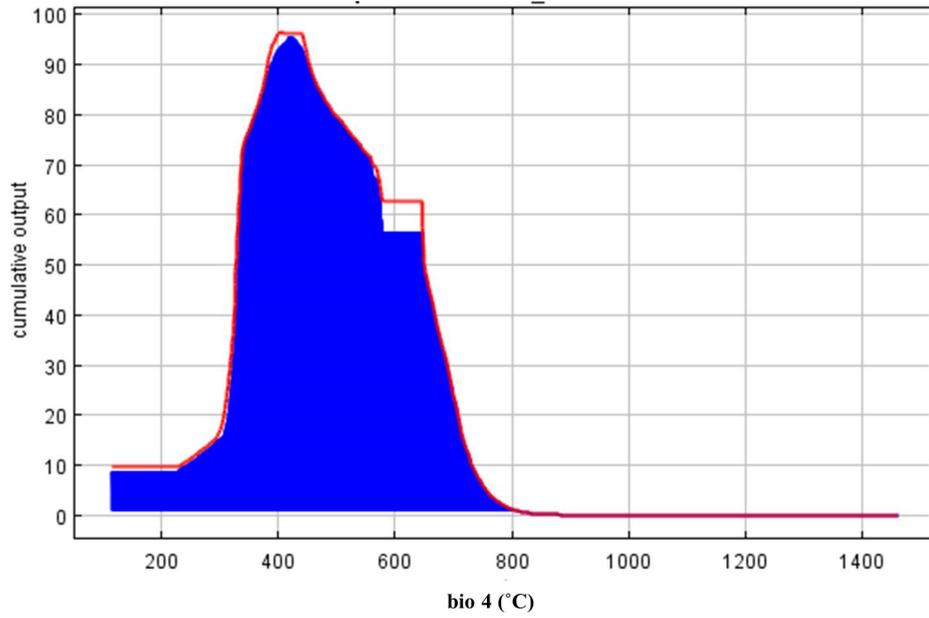


Figure S6. Response curve for Temperature Seasonality (bio 4) (=standard deviation \times 100).

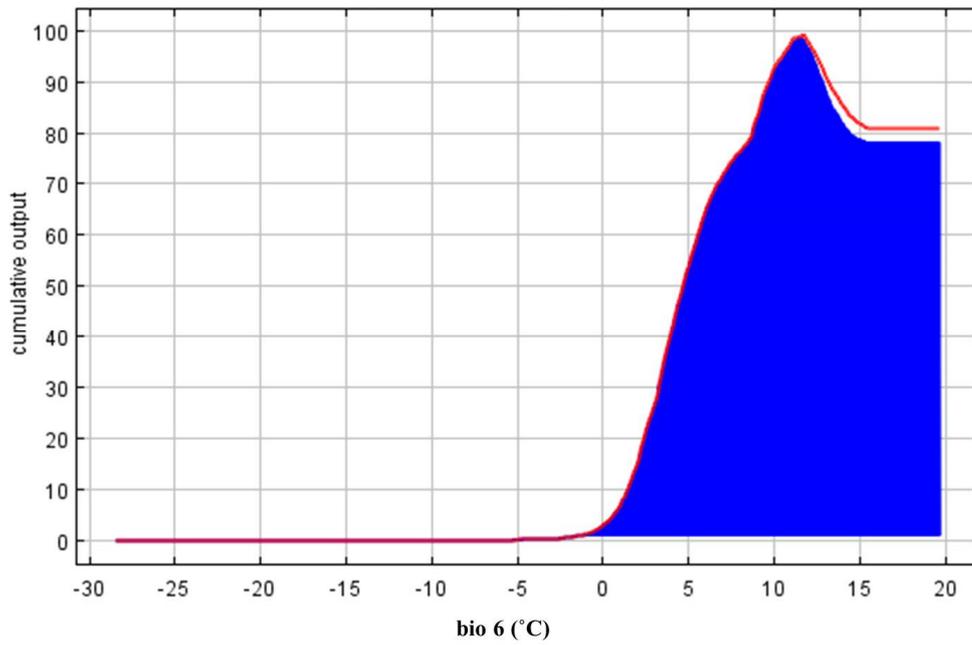


Figure S7. Response curve for Min Temperature of Coldest Month (bio 6).

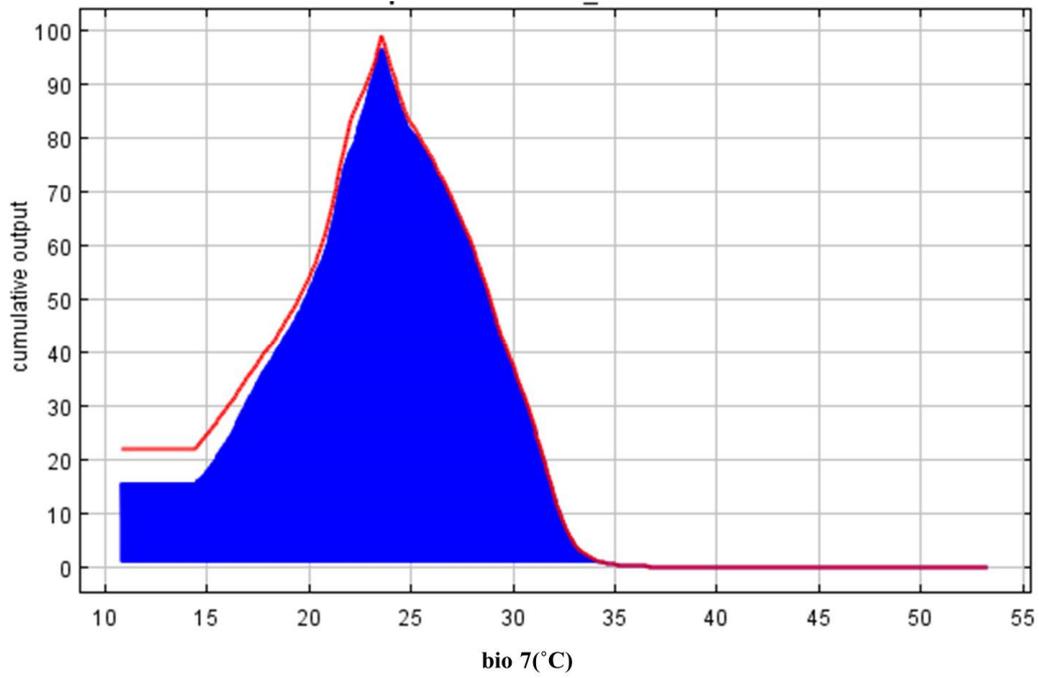


Figure S8. Response curve for Temperature Annual Range (bio 7).

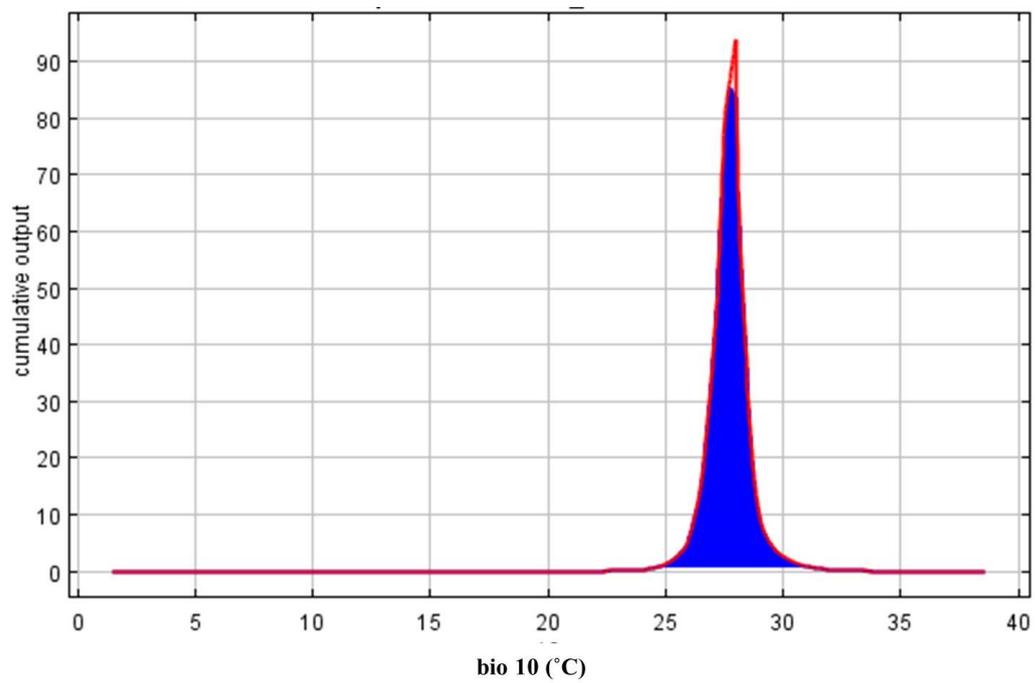


Figure S9. Response curve for Mean Temperature of Warmest Quarter (bio 10).

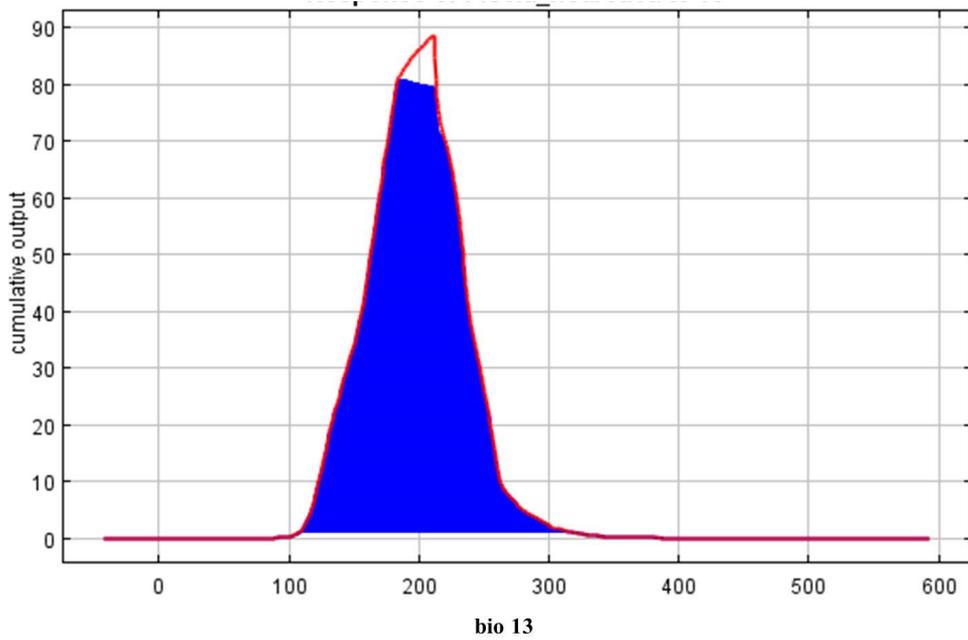


Figure S10. Response curve for Precipitation of Wettest Month (bio 13).

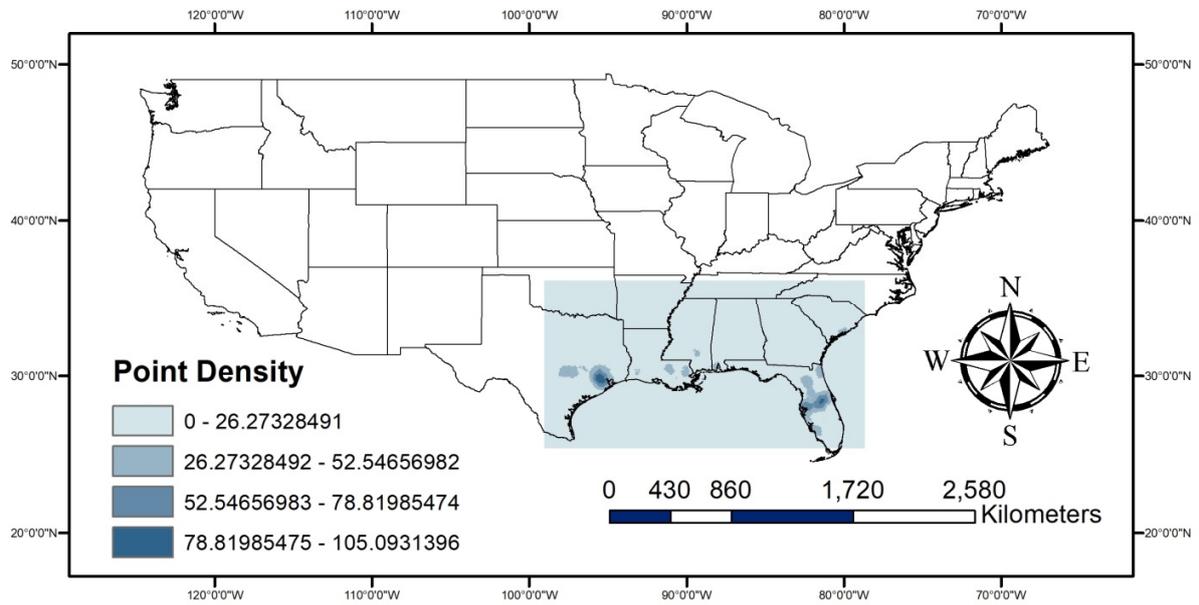


Figure S11. Density of the occurrence records (point density) in the study area. Point density reflects the number of points per area.