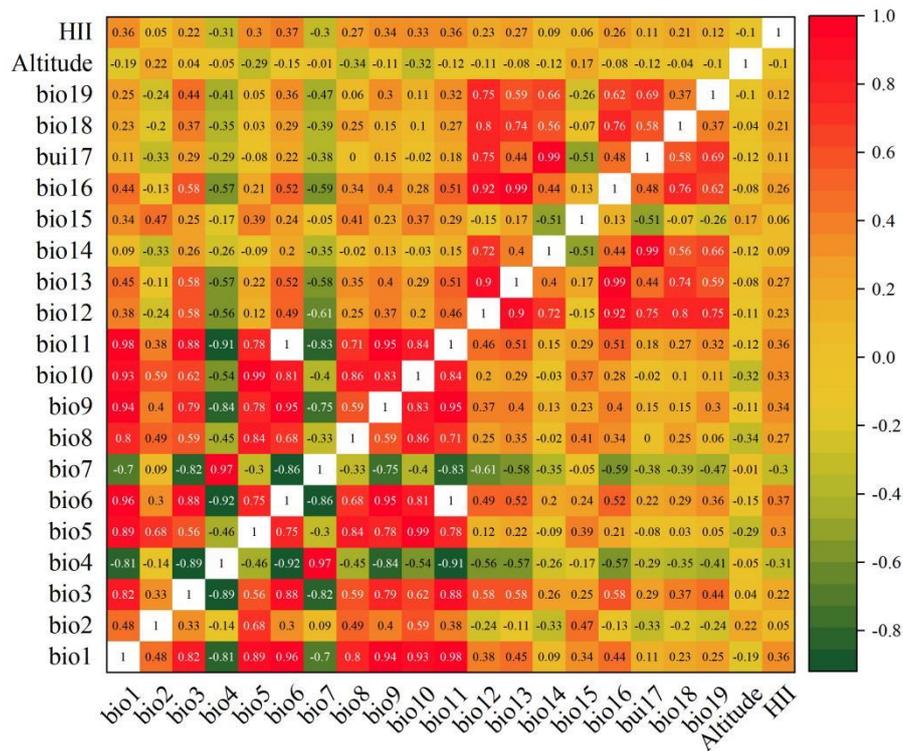


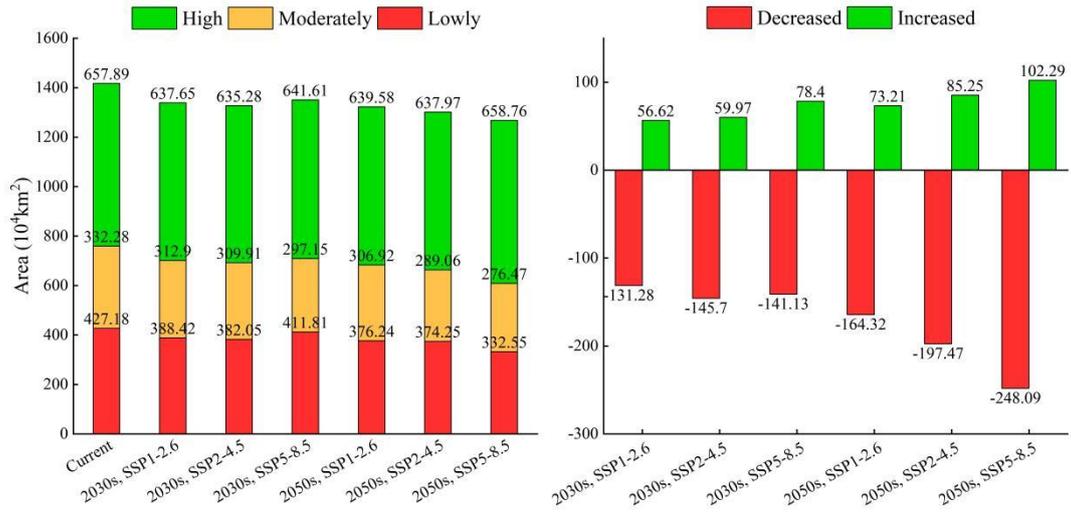
## Supplementary Material

### 1 Supplementary Figures and Tables

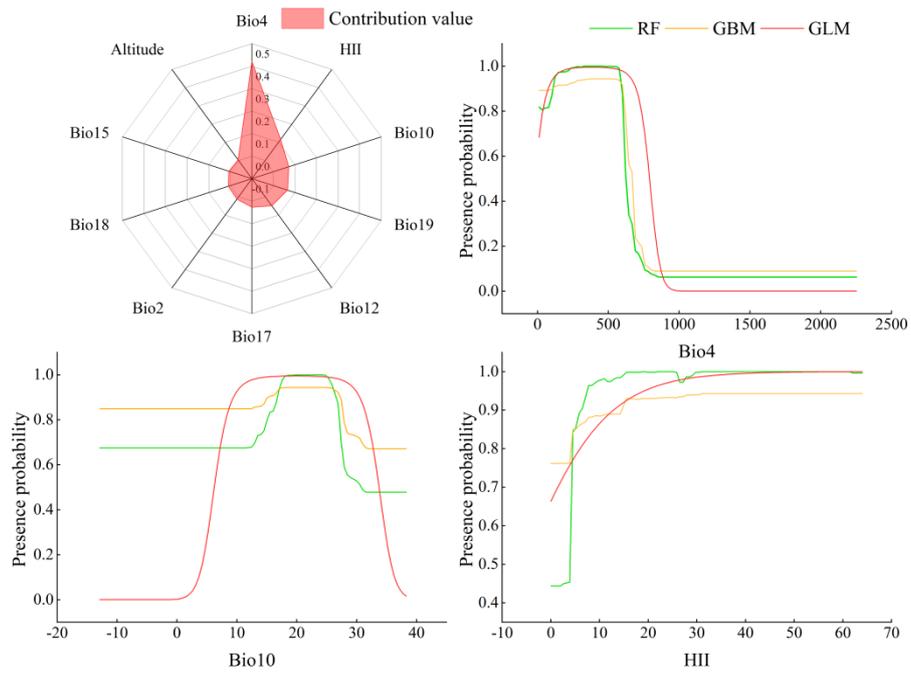
#### 1.1 Supplementary Figures



**Figure S1** Pearson correlation coefficients of 19 bioclimatic variables for four study species.



**Figure S2** The areas of potential geographical distribution and changes of *Phoracantha semipunctata* under near current and future climate (2030s and 2050s)



**Figure S3** The areas of potential geographical distribution and changes of *Phoracantha semipunctata* under near current and future climate (2030s and 2050s)

## 1.2 Supplementary Tables

**Supplementary Table S1** All environmental variables

| Variables | Description                         | Unit | Resolution      | Sources   |
|-----------|-------------------------------------|------|-----------------|-----------|
| Bio1      | Annual mean temperature             | °C   | 2.5 arc minutes | WorldClim |
| Bio2      | Mean diurnal range                  | °C   | 2.5 arc minutes | WorldClim |
| Bio3      | Isothermality                       | -    | 2.5 arc minutes | WorldClim |
| Bio4      | Temperature seasonality             | °C   | 2.5 arc minutes | WorldClim |
| Bio5      | Max temperature of warmest month    | °C   | 2.5 arc minutes | WorldClim |
| Bio6      | Min temperature of coldest month    | °C   | 2.5 arc minutes | WorldClim |
| Bio7      | Temperature annual range            | °C   | 2.5 arc minutes | WorldClim |
| Bio8      | Mean temperature of wettest quarter | °C   | 2.5 arc minutes | WorldClim |
| Bio9      | Mean temperature of driest quarter  | °C   | 2.5 arc minutes | WorldClim |
| Bio10     | Mean temperature of warmest quarter | °C   | 2.5 arc minutes | WorldClim |
| Bio11     | Mean temperature of coldest quarter | °C   | 2.5 arc minutes | WorldClim |
| Bio12     | Annual precipitation                | mm   | 2.5 arc minutes | WorldClim |
| Bio13     | Precipitation of wettest month      | mm   | 2.5 arc minutes | WorldClim |

|          |  |    |                    |  |
|----------|--|----|--------------------|--|
| Bio14    | Precipitation<br>of driest<br>month    | mm | 2.5 arc minutes    | WorldClim  |
| Bio15    | Precipitation<br>seasonality           | -  | 2.5 arc minutes    | WorldClim  |
| Bio16    | Precipitation<br>of wettest<br>quarter | mm | 2.5 arc minutes    | WorldClim  |
| Bio17    | Precipitation<br>of driest<br>quarter  | mm | 2.5 arc minutes    | WorldClim  |
| Bio18    | Precipitation<br>of warmest<br>quarter | mm | 2.5 arc minutes    | WorldClim  |
| Bio19    | Precipitation<br>of coldest<br>quarter | mm | 2.5 arc minutes    | WorldClim  |
| Altitude | Altitude                               | m  | 2.5 arc minutes    | WorldClim  |
| HII      | Human<br>Influence<br>Index            | -  | 2.5 arc<br>minutes | NASA<br>Socioeconomic Data<br>and Applications<br>Center |

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**Supplementary Table S2** Environmental variables related to the distribution of

*Phoracantha semipunctata*

| Variables | Description                         | Unit |
|-----------|-------------------------------------|------|
| Bio2      | Mean diurnal range                  | °C   |
| Bio4      | Temperature seasonality             | °C   |
| Bio10     | Mean temperature of warmest quarter | °C   |
| Bio12     | Annual precipitation                | mm   |
| Bio15     | Precipitation seasonality           |      |
| Bio17     | Precipitation of driest quarter     | mm   |
| Bio18     | Precipitation of warmest quarter    | mm   |
| Bio19     | Precipitation of coldest quarter    | mm   |
| Altitude  | Altitude                            | m    |
| HII       | Human Influence Index               | -    |