

CentralRange

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¹ TITLE

² **Abstract**

3 **Introduction**

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8 **Methods**

9 **Data**

10 **Species Ranges** We constructed a global pollinator metaweb was created by querying
11 Mangel for plant-pollinator networks. This resulted in a total of 65 globally distributed net-
12 works, and a total of 1018 individual species. For each species, we queried global occurrence
13 records from GBIF using the `rgbif` packages. Occurrence points were first processed us-
14 ing `coordinateCleaner`; points were removed if they were present outside of the fossil
15 record, occurred within 2km of country centroids, were located on ocean, or were marked as an
16 "introduced" individual.

17 To avoid overestimating species range through including spurious or transient records in
18 GBIF, we used a quantile approach to filter out rare occurrences. We projected the remaining
19 occurrence points onto a raster of terrestrial climate at a resolution 10 minutes, where each cell
20 was assigned a value equal to the number of occurrences in that cell. We then filtered occurrence
21 cells to only include occurrence cells in the top 0.9 quantile of number of records, and used
22 only these top 10% of occurrence localities to estimate species range.

23 Species ranges were calculated through both minimum convex polygon and alpha hull ap-
24 proaches ($\alpha = 20$). Each species range was calculated separately for each continent according
25 to a 7 continent model (Asia, Europe, Africa, Oceania, North America, Antarctica, and South

26 America); total species range was calculated as the total terrestrial area occupied across all
27 continents.

28 **Reproducibility** *R* code and data to reproduce the analyses is provided at
29 <https://doi.org/>

30 **Results**

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34 **Discussion**

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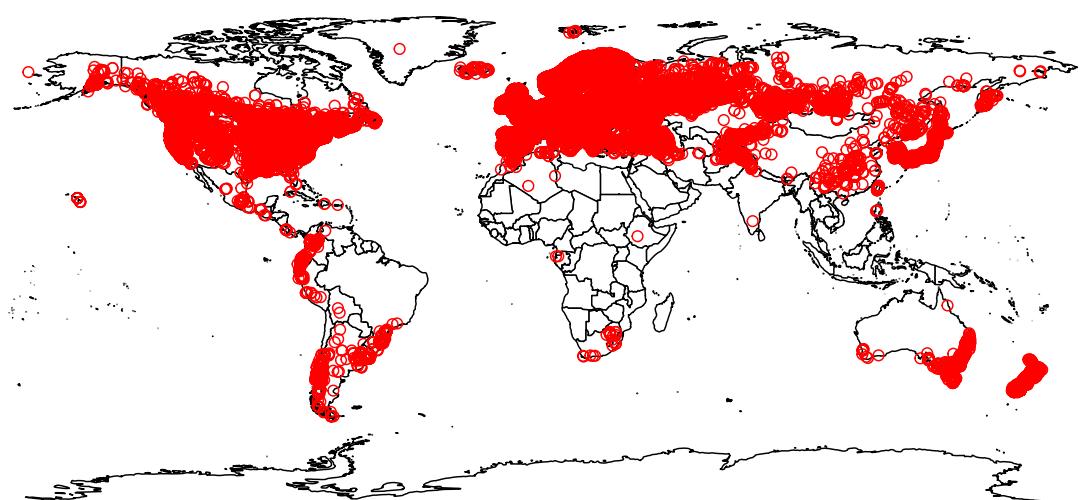


Figure 1: Raw GBIF occurance points for red clover

Figure 2: A figure with caption.

Figure 3: A figure with caption.

41 **Tables**

Table 1: A table with caption.

covariate	t-SNE axis	obs	exp	sd	p-value	z-score
geography	1	0.02963	-0.00032	0.00014	< 0.0001	216.3
	2	0.01930	-0.00032	0.00014	< 0.0001	141.7
age structure	1	0.00043	-0.00032	0.00001	< 0.0001	60.5
	2	0.00017	-0.00032	0.00001	< 0.0001	39.4
population size	1	0.00002	-0.00032	0.00003	< 0.0001	11.7
	2	0.00004	-0.00032	0.00003	< 0.0001	12.3
R_0	1	0.00339	-0.00032	0.00003	< 0.0001	110.7
	2	0.00135	-0.00032	0.00003	< 0.0001	49.8

42 **Figures**

Figure 4: A figure with caption.

43 **Supplementary materials**

44 **Title:**

45 **Authors:**

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Figure S1: Caption