Supplementary File 3. Köppen-Geiger climate categories, climate and biome distribution maps and climatic niche graphs

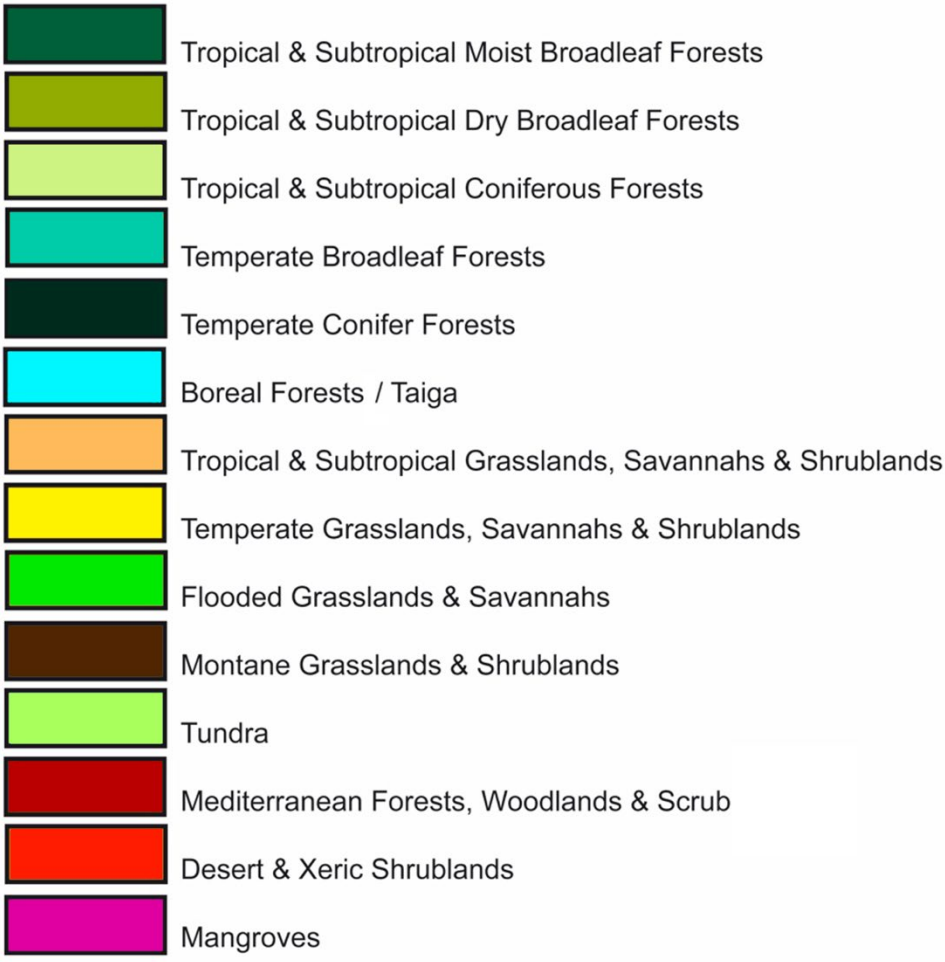
1.1. Description of Köppen-Geiger climate symbols and defining criteria

1st	2nd	3rd	Description and criteria
A			equatorial / tropical ($T_{cold} \geq 18$ C)
	f		rainforest, fully humid ($P_{dry} \geq 60$mm)
	m		monsoonal (not Af & $P_{dry} \geq 100\text{-}MAP/25$)
	s		savannah with dry summer ($P_{sdry} < 60$ mm)
	w		savannah with dry winter ($P_{wdry} < 60$ mm)
B			arid ($MAP < 10 \times P_{threshold}$)
	W		desert ($MAP < 5 \times P_{threshold}$)
	S		steppe ($MAP \geq 5 \times P_{threshold}$)
		h	hot arid (MAT ≥18 C)
		k	cold arid (MAT <18 C)
C			warm temperate/temperate ($T_{hot} > 10$ C & 0 C< $T_{cold} < 18$ C)
D			snow / cold ($T_{hot} > 10$ C & $T_{cold} \leq 0$ C)
	s		summer dry ($P_{sdry} < 40$ & $P_{sdry} < P_{wwet}/3$)
	w		winter dry ($P_{wdry} < P_{swet}/10$)
	f		fully humid / without a dry season (not s or w)
		a	hot summer ($T_{hot} \geq 22$ C)
		b	warm summer (not a & $T_{mon}10 \geq 4$)
		c	cool / cold summer (not a or b & $1 \leq T_{mon}10 < 4$)
		d	extremely continental / very cold winter (not a or b & $T_{cold} < -38$ C)
E			polar ($T_{hot} < 10$ C)
	T		polar tundra ($T_{hot} \leq 10$ C)
	F		permanent frost

MAP = mean annual precipitation, MAT = mean annual temperature, T_{hot} = temperature of the hottest month, T_{cold} = temperature of the coldest month, T_{mon10} = number of months where the temperature is above 10 C, P_{dry} = precipitation of the driest month, P_{sdry} = precipitation of the driest month in summer, P_{wdry} = precipitation of the driest month in winter, P_{swet} = precipitation of the wettest month in summer, P_{wwet} = precipitation of the wettest month in winter, $P_{threshold}$ = varies according to the following rules (if 70% of MAP occurs in winter then $P_{threshold} = 2 \times MAT$, if 70% of MAP occurs in summer then $P_{threshold} = 2 \times MAT + 28$, otherwise $P_{threshold} = 2 \times MAT + 14$). Summer (winter) is defined as the warmer (cooler) six months period of ONDJFM and AMJJAS (Kottek et al. 2006; Peel et al., 2007; Rubel et al., 2017).

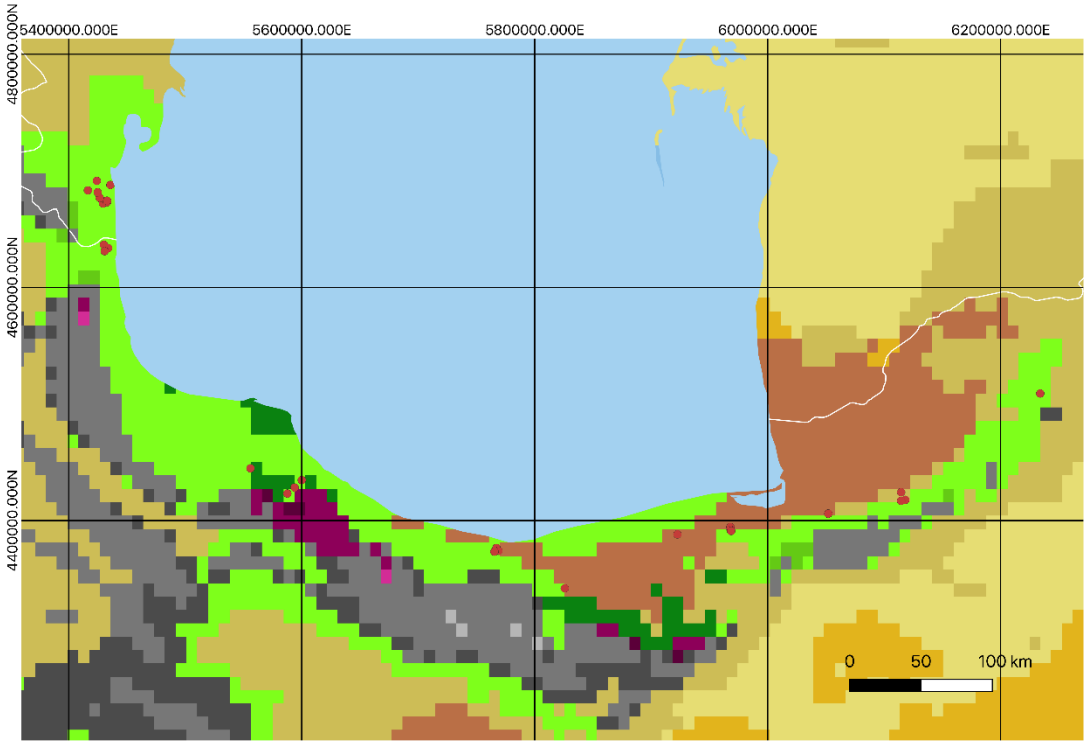
2.1. Köppen-Geiger climate map color coding

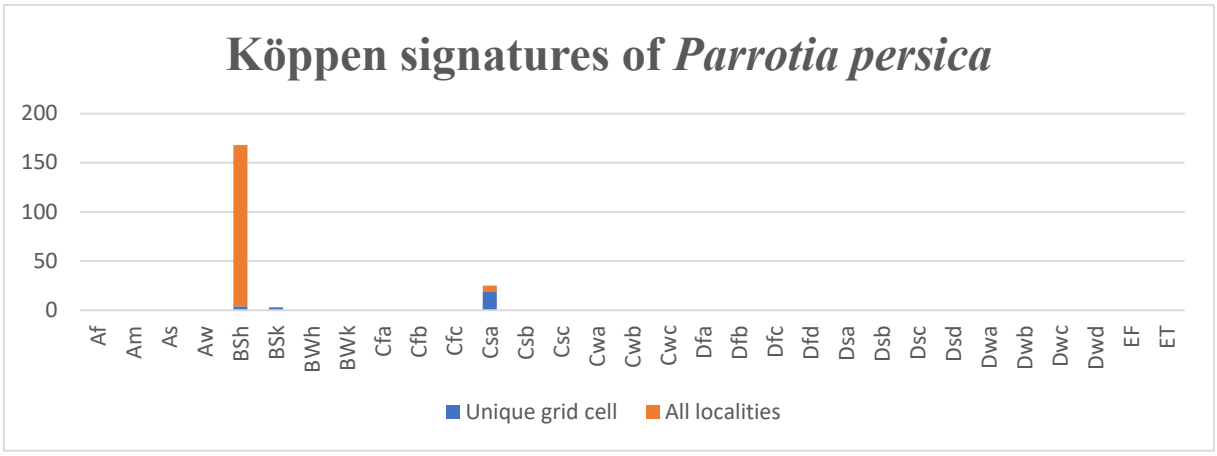
2.2. Biome map color coding

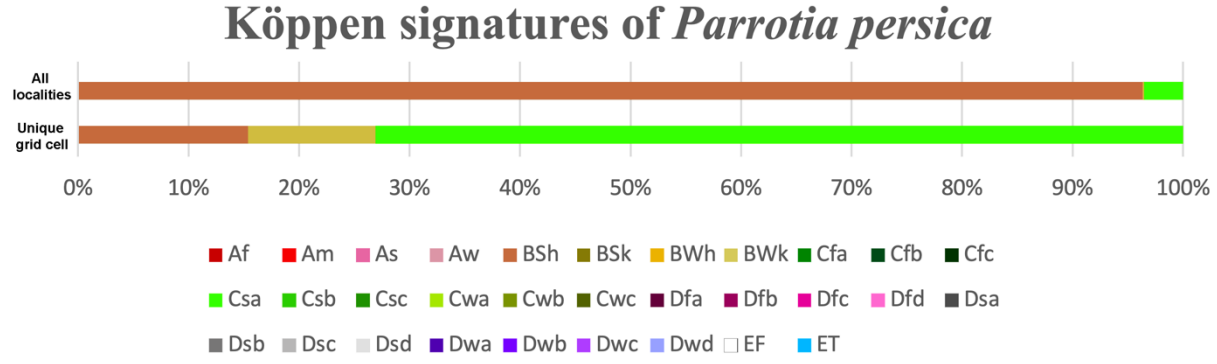


Categories based on Olson et al. (2001)

3.1.1. KÖPPEN SIGNATURES – *Parrotia persica* (DC.) C.A.Mey.
GBIF localities of *P. persica* (all occurrences → red dots)



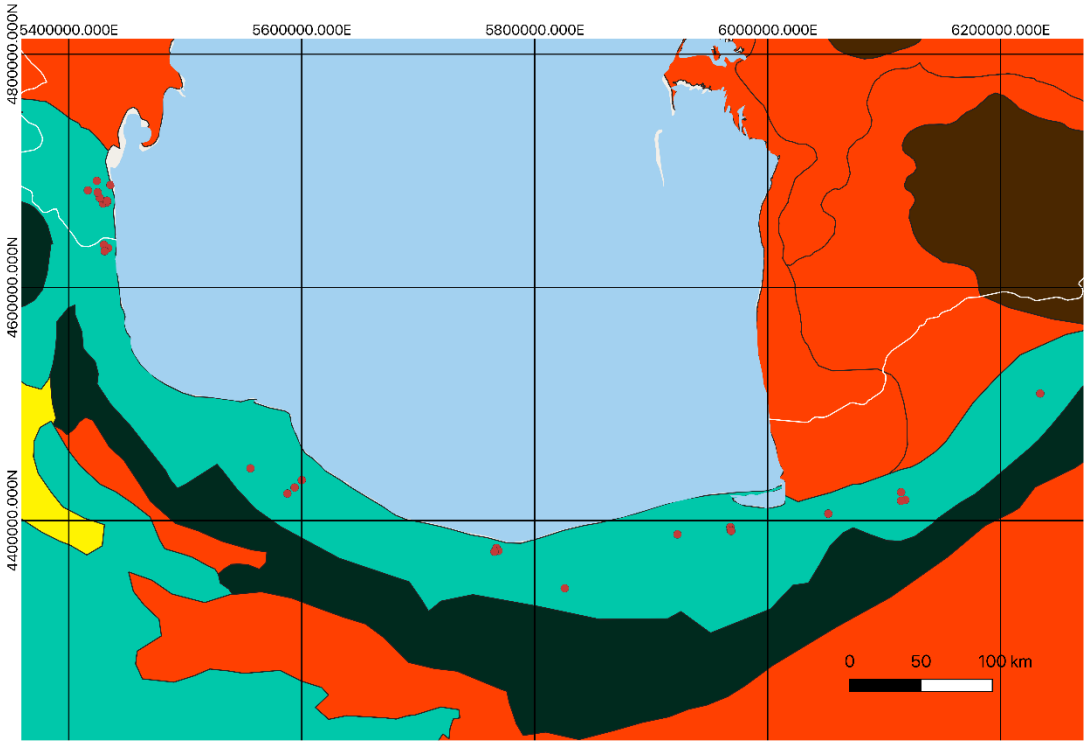


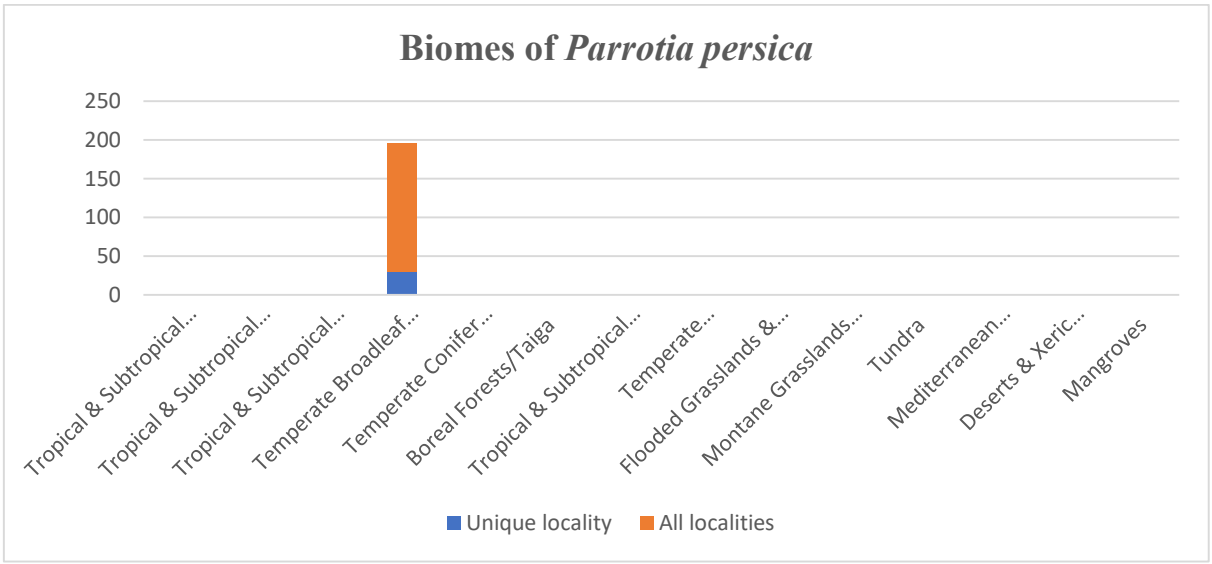


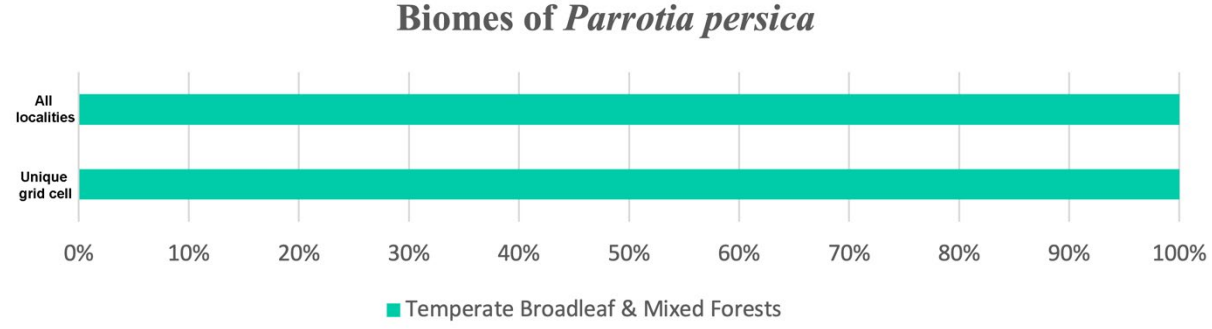
All localities (n = 196); unique grid cells (n = 26)

3.1.2. BIOMES – *Parrotia persica*

GBIF localities of *P. persica* (all occurrences → red dots)



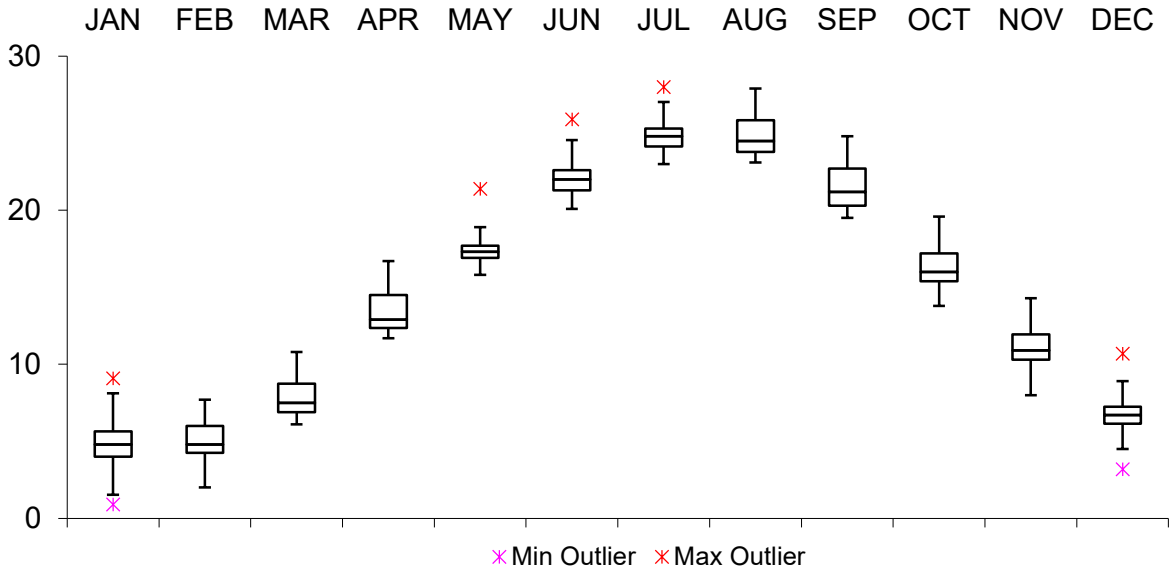




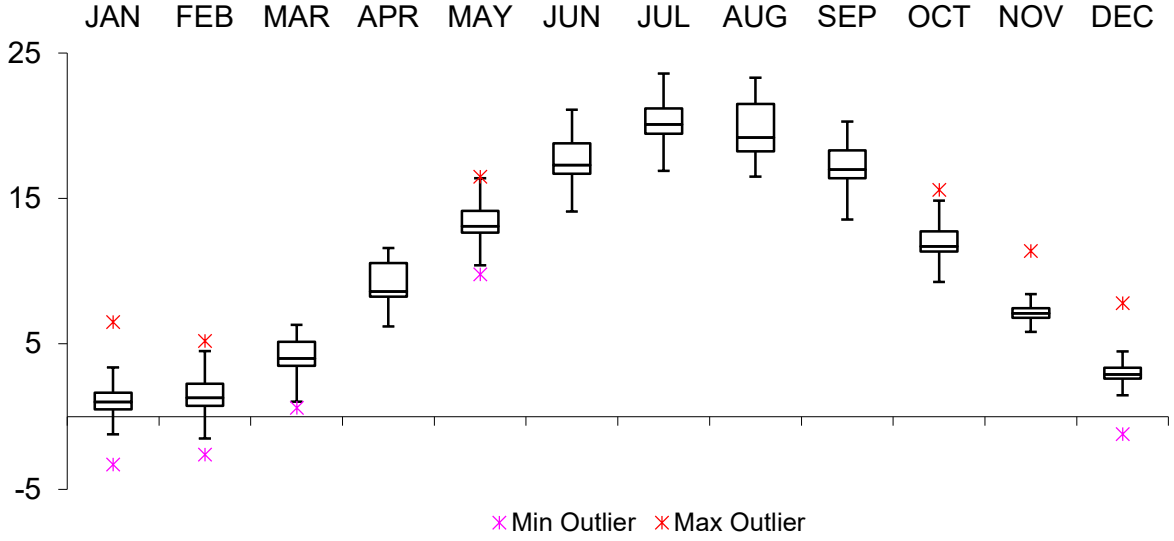
All localities (n = 196); unique localities (n = 30)

3.1.3. Climate data of georeferenced GBIF occurrences of *Parrotia persica*

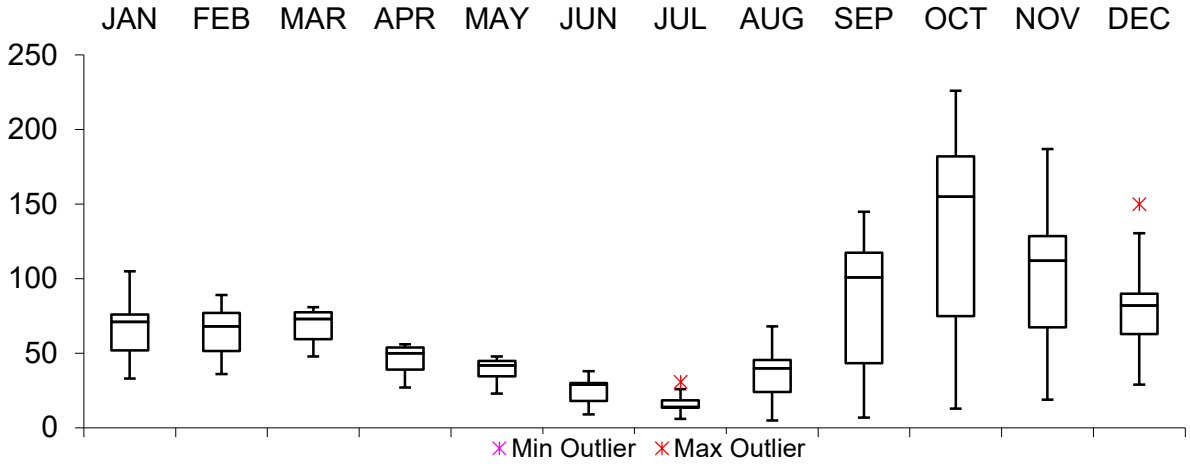
Monthly mean temperature (MMT) for *P. persica* (196 data sets, 30 unique localities)



Coldest month mean temperature (CMMT) for *P. persica* (196 data sets, 30 unique localities)

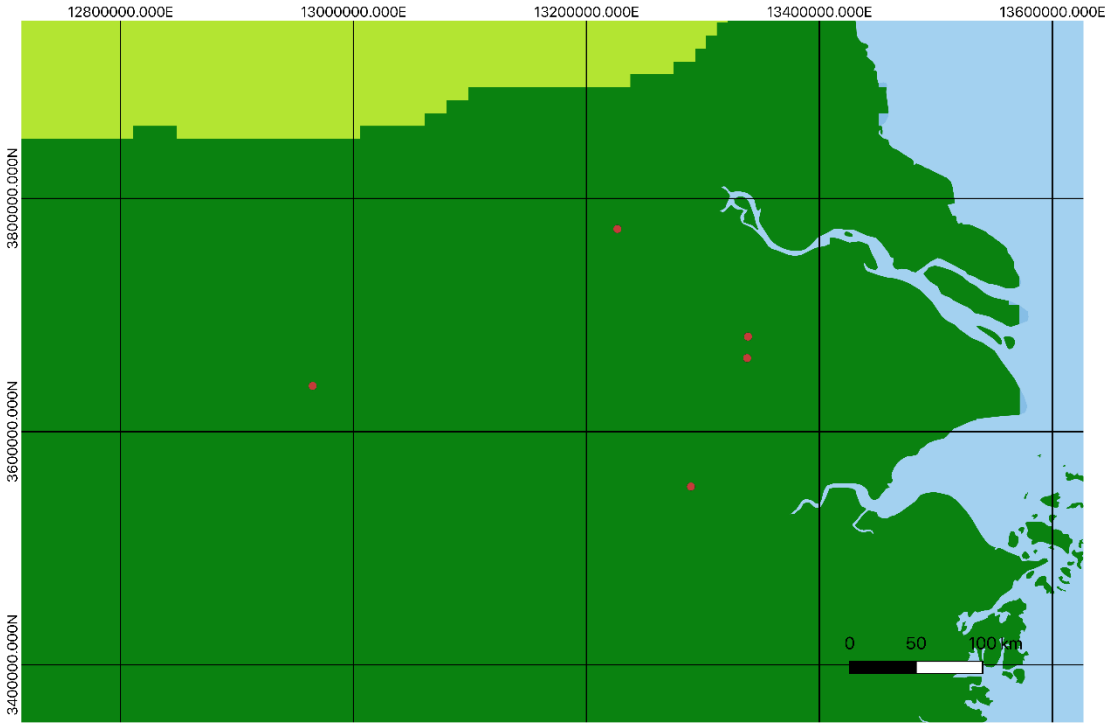


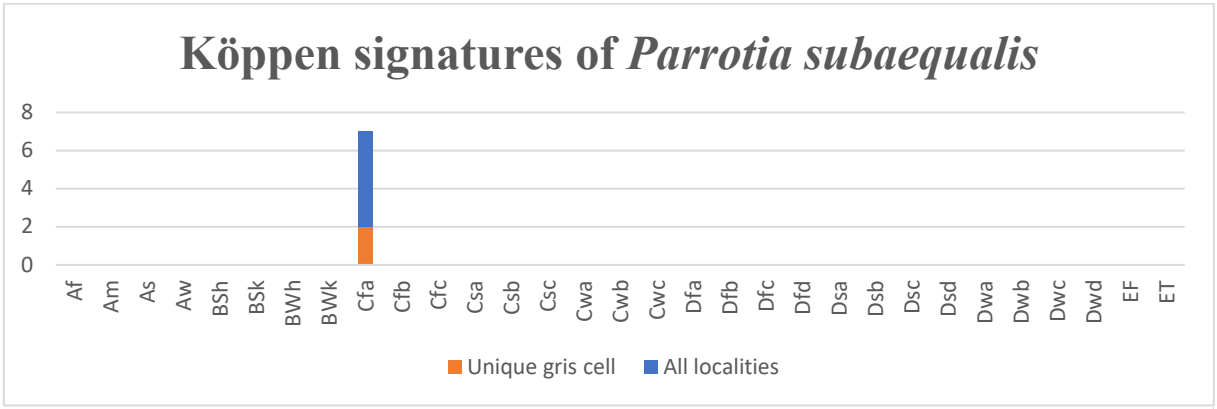
Monthly average precipitation (MAP) for *P. persica* (196 data sets, 30 unique localities)

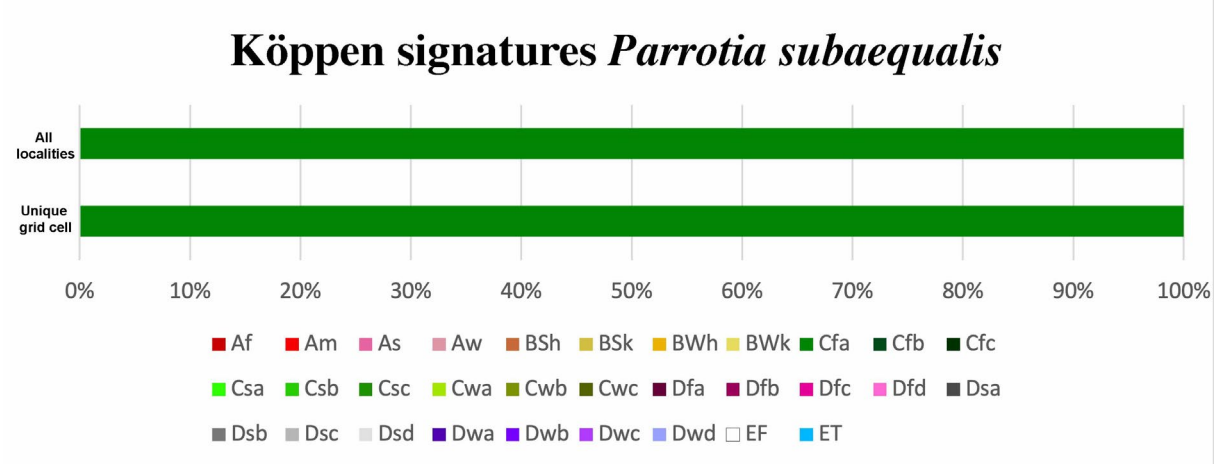


3.2.1. KÖPPEN SIGNATURES – *Parrotia subaequalis* (Hung T.Chang) R.M.Hao & H.T.Wei

GBIF localities of *P. subaequalis* (all occurrences → red dots)



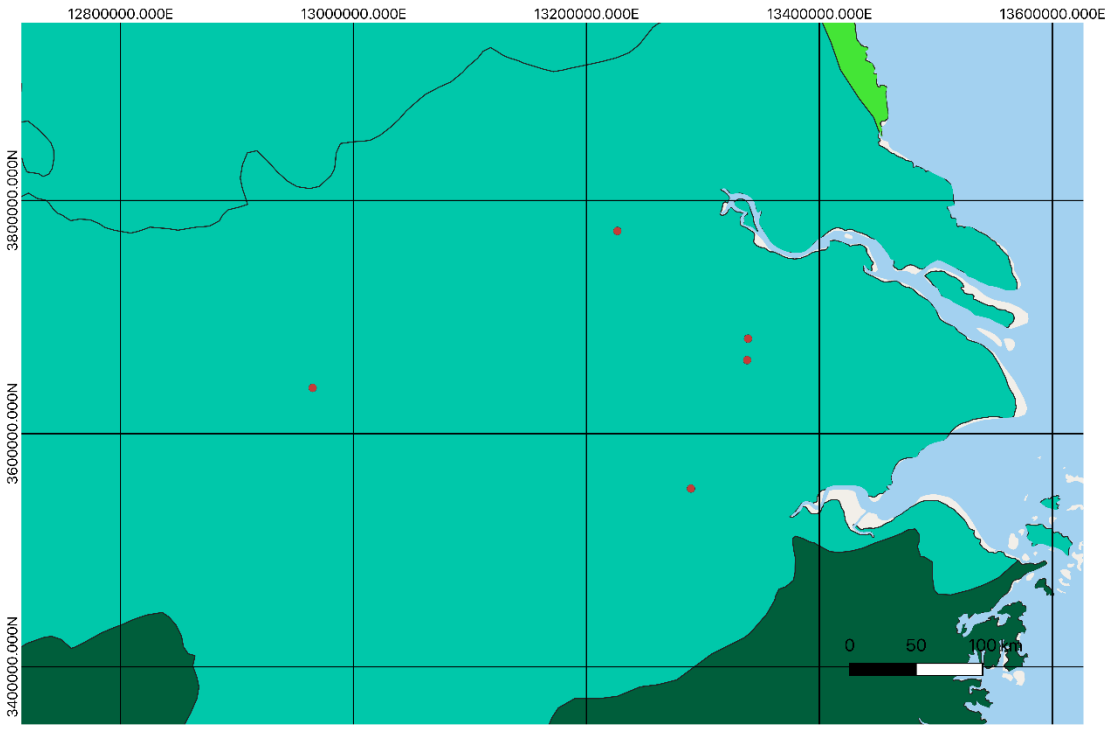


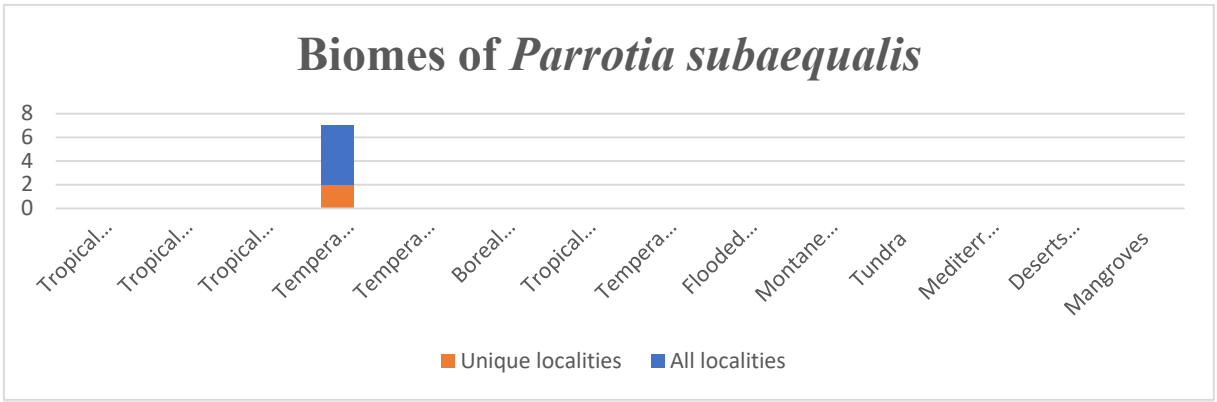


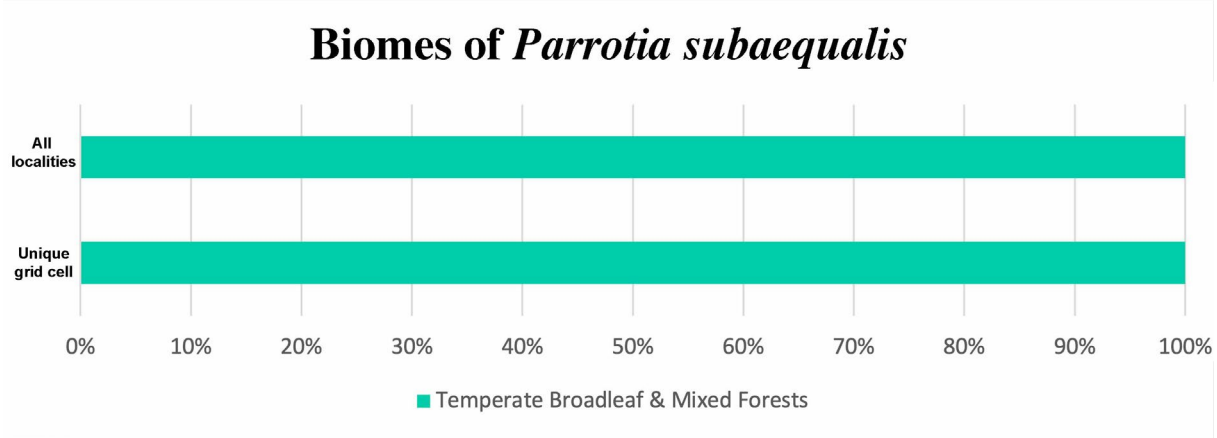
All localities (n = 7); unique grid cells (n = 5)

3.2.2. BIOMES – *Parrotia subaequalis*

GBIF localities of *P. subaequalis* (all occurrences → red dots)



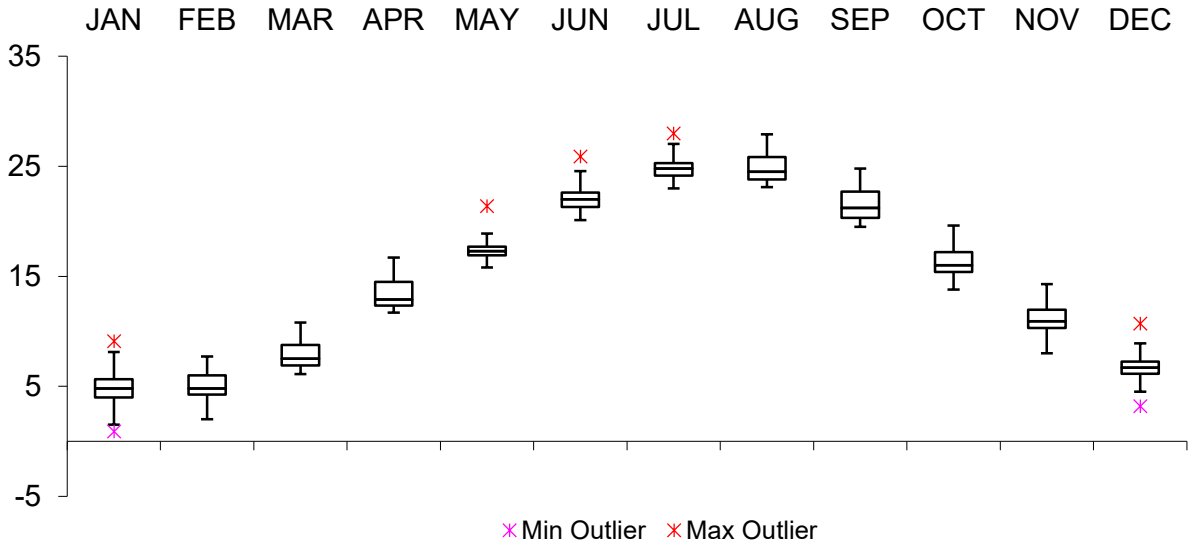




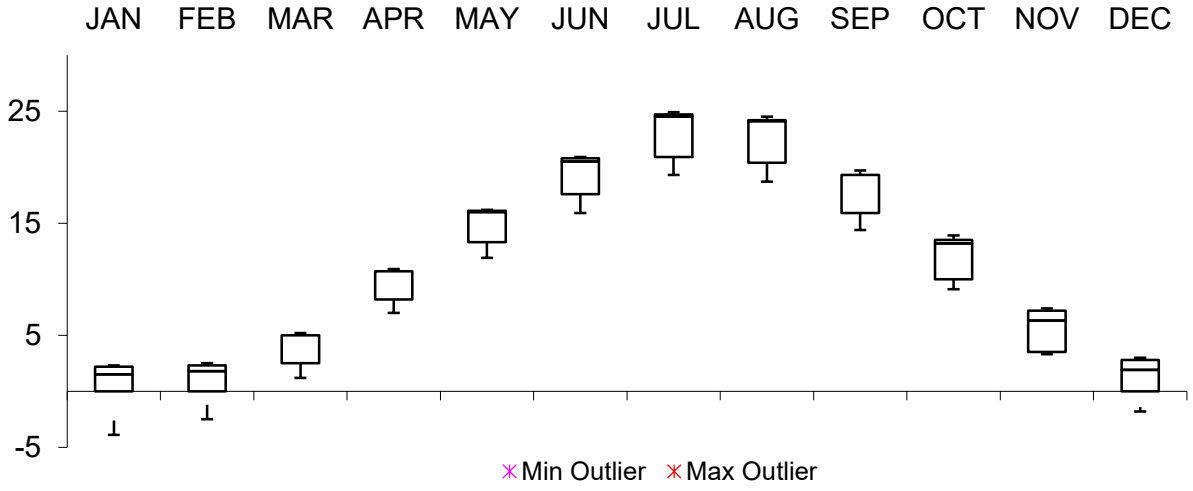
All localities (n = 7); unique localities (n = 5)

3.2.3. Climate data of georeferenced GBIF occurrences of *Parrotia subaequalis*

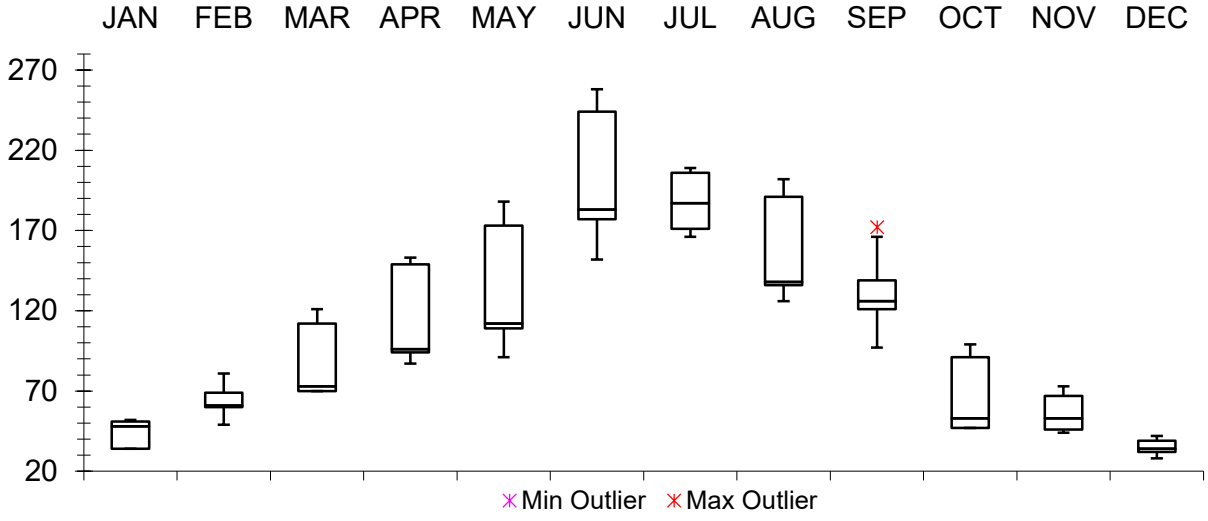
Monthly mean temperature (MMT) for *P. subaequalis* (7 data sets, 5 unique localities)



Coldest month mean temperature (CMMT) for *P. subaequalis* (7 data sets, 5 unique localities)



Monthly average precipitation (MAP) for *P. subaequalis* (7 data sets, 5 unique localities)



4. References:

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GBIF dataset: *Parrotia persica*: https://doi.org/10.15468/dl.v8wyjp

GBIF dataset: *Parrotia subequalis*: https://doi.org/10.15468/dl.gqzx8n

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