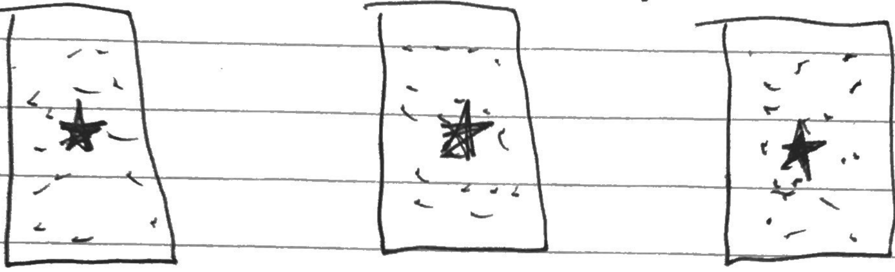
GDDs   Mean ~ site
sd ~ site
var ~ site
GDDS ~ site

Local Climate over time   GDD.sd~site → ~~APR~~ -MAY!

I stepped in some sort of poop + struggled to get off my shoe + I keep smelling it!

Took forever to get off

PNW   NE   Eur



I cant smell it. Good. I think it's stuck in my nose.

★ GDDS
Chilling

Apr-May

GDDs ~ urban + (urban|site)

GDDs ~ ~~latitude~~ [~~continent~~]

Arb ~~vs HF~~
Phylogeny of GDDs?

Phylogeny + (s # | species)

→ GDDs ~ urban + (urban|species) + force + photo

BB ~ chill + force

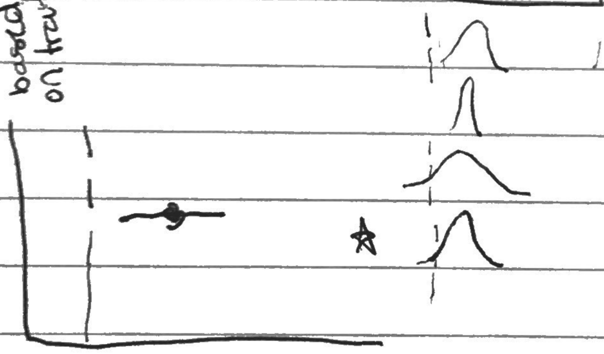
BB ~ trait + joint(force)

→ is forced diff btw spp

more based on trait

~~GDDs vs urban~~

Lat



Interested in how many sites BB w/ GDDs on low end

• Local adaptation

GDDs to BB

HF

Arb

Europe urban vs forests

Data source:
PEP for Europe
Obs for HF + Arb
⇓ TX
add in Project BB?
NPN??

GDD

urban vs forest
↓
10 mile radius

GDDs ~ urban + (urban|site)

GDDs ~ ~~...~~ HF

GDDs (Apr-May) ~ HF

GDDs ~ HF+(HF|sp)

GDDs ~ site (-HF)

GDDs (Apr-May) ~ ~~...~~

threshold

Threshold ~ site

1) PNW NE Eur
GDD ~ site
GDD.sd ~ site
→ How much variation across the range + compare across sites

2) HF threshold across range. Repeat for Europe + PNW
e.g., 180 GDDs as 10% lower bound → Local adaptation

3) Urban vs Forest
Arb vs HF GDDs across ~~spp~~ species
+ across Europe
↓
Or is it urban effect??

4) Microclimates ⇒ Supp ?

5) Phylogeny ⇒ also supp

Step 1:
Total sugar
6 [8] studies
prov trials w/ many sites

* Lit review
How far do you have to go is interannual clim small compared to spatial data
* European data: track down at EGU common garden papers

Lab meeting schedule

Local Adaptation

8 studies
10 species per study
6 sites (provs)

GDDs

$LO \sim latitude + (latitude \mid species/study)$

$GDD_{LO} \sim latitude + (latitude \mid species/study)$

$GDD_{LO} \sim study + (1 \mid species/site)$

$GDD_{LO} = \alpha_{study} + B_{ij} + \sigma_j$

$GDD_{LO} = \alpha_{study} + B_{lat_i} + \delta_i + \delta_{study}$

$GDD_{LO} \sim study + latitude + (latitude \mid species)$

$y_i = \alpha_{study} + B_{lat_i} + \delta$

Social Penumbras