

plan 1

Background note: 162 pots can fit in each (2) growth chambers and get direct light. More can fit in chillin chambers on shelves.

Due to these space limitations, I propose doing applying in the chambers and forcing in the greenhouse since the focus for this study is not about the specifics of the temperature response (will discuss more below).

- 1) 9pots [response surface] * 3 [reps] * 3 [species] * 2 [chill] * 2 [harvest dates] = 324 pots or
- 2) 9pots [response surface] * 3 [reps] * 3 [species] * 3 [chill] * 2 [harvest dates] = 486 pots or
- 3) 9pots [response surface] * 3 [reps] * 3 [species] * 2 [chill] * 2 [nutrients] * 2 [harvest dates] = 648 pots or
- 4) 9pots [response surface] * 3 [reps] * 3 [species] * 3 [chill] * 2 [nutrients] * 2 [harvest dates] = 972 pots

0.1 Response surface

Because of variability in germination, I don't want to have too low densities that it is possible that no seeds germinate. 9 pots per RS is idea for spacing in chambers. Two total densities of 8 max per pot and 16. (Could also do 4)

0.2 species and climate treatment

H. matronalis, *P. virginianum*, *C. canadensis*.

As we can see, most of the action happens at M forcing (20/10) and chilling has a much stronger effect on T50. (Unfortunately I didn't test the Polygonum at low temperatures, but I do not think it would have germinated reasonably based at low chilling).

0.3 Nutrients

Nutrient availability might interact with the importance of the priority effect. Also, after 1 month in the greenhouse, all plants seem nutrient deficient (P and N). Challenge: If some plants germinated early and other late, applying nutrients might shock those still in the cotyledon phase.

Will discuss with Lee on Friday with and update this proposal:

0.4 Multiple Harvests

We don't want to conflate final biomass estimates with ontogeny. ie if we harvest now (after 1 month), many later germinators are still cotyledons. Harvest 2 crops, eg one after 1 month and 1 after 3 months ensures some data, and shows how the priority effects might change over time.

Harvest 1: 7 weeks after transfer to forcing conditions (3 weeks for germination and 4 for growth).

Harvest 2: 15 weeks after transfer to forcing conditions (3 weeks for germination and 12 for growth).

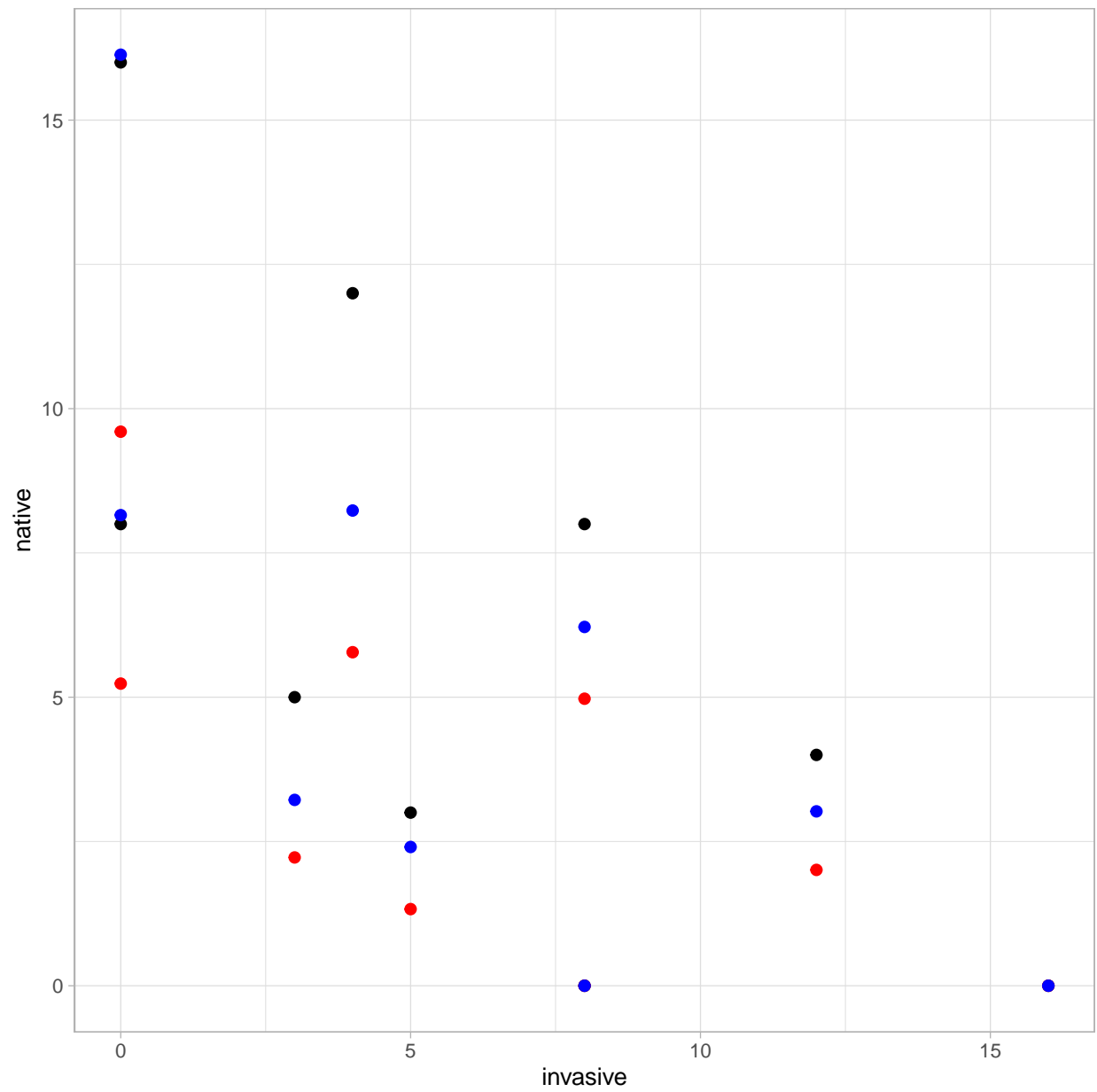


Figure 1: black dots = planted densities, red dots= expected densitites with 6 weeks of strat, blue dots with 10 weeks of strat

