Phenological cue use varies with functional traits in North American woody plan communities

Deirdre Loughnan[1], Faith A M Jones[1], and E M Wolkovich[1]

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[1] Department of Forest and Conservation, Faculty of Forestry, University of British Columbia, 2424 Main Mall Vancouver, BC Canada V6T 1Z4.

Corresponding Author: Deirdre Loughnan deirdre.loughnan@ubc.ca

These plots are made using the species means and standard error of the trait data and the mean species level cue estimates from the phenology model that includes four sites and phylogenetic effects.

1. Slight trend in Mean C:N and bb, with higher CN species bb earlier (Fig 1)

2. Slight trend with height, taller indiivudals bb later
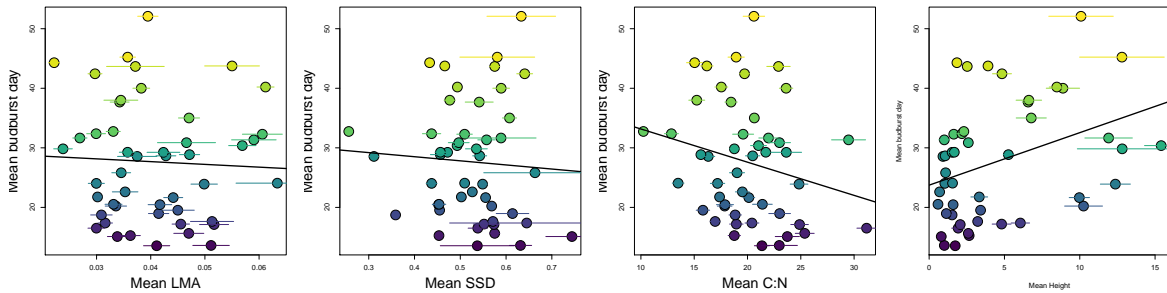

Figure 1: Relationship between mean species traits and mean bb day, with species bb day reflected in the colour gradient. Trendlines based on simple linear models comparing day of bb and trait values.

14   1. Slight trend in mean SSD, with western species having slightly lower ssd than shrubs in the east
15   (Fig.2)

16   2. Slight trend in mean CN, with western shrubs having lower CN that easter spp (Fig.2)

17   3. Difficult to make any such inferences since we had so few speices of trees in BC (Fig. 3)
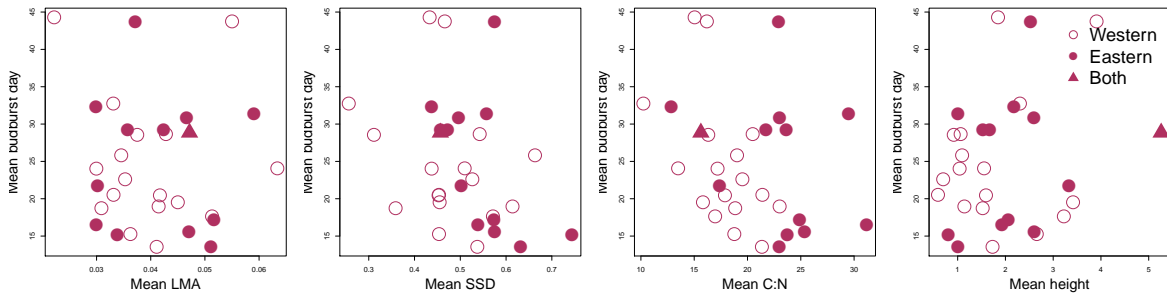

Figure 2: Relationship between mean shrub species traits and mean bb day, with point shapes
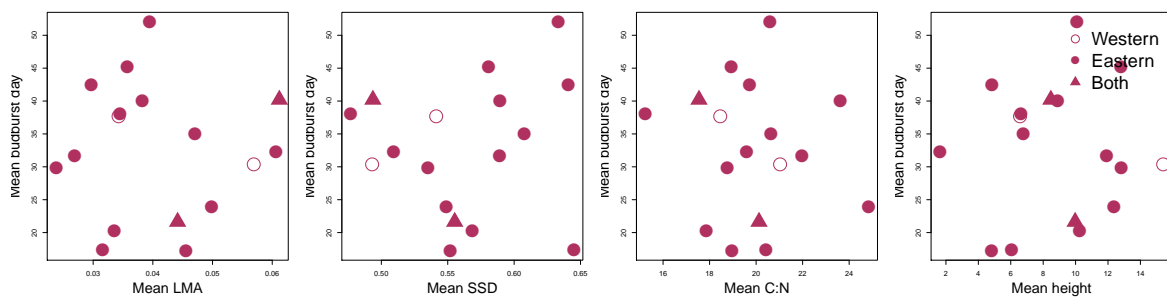indicating the transect.

Figure 3: Relationship between mean tree species traits and mean bb day, with point shapes indicating the transect.

18   1. Species with stronger chill responses (more negative chilling slopes, shown in purple) bb later
19   (Fig 4)

20   2. Similar for forcing and photoperiod

21   3. May be slight trends in C:N and height

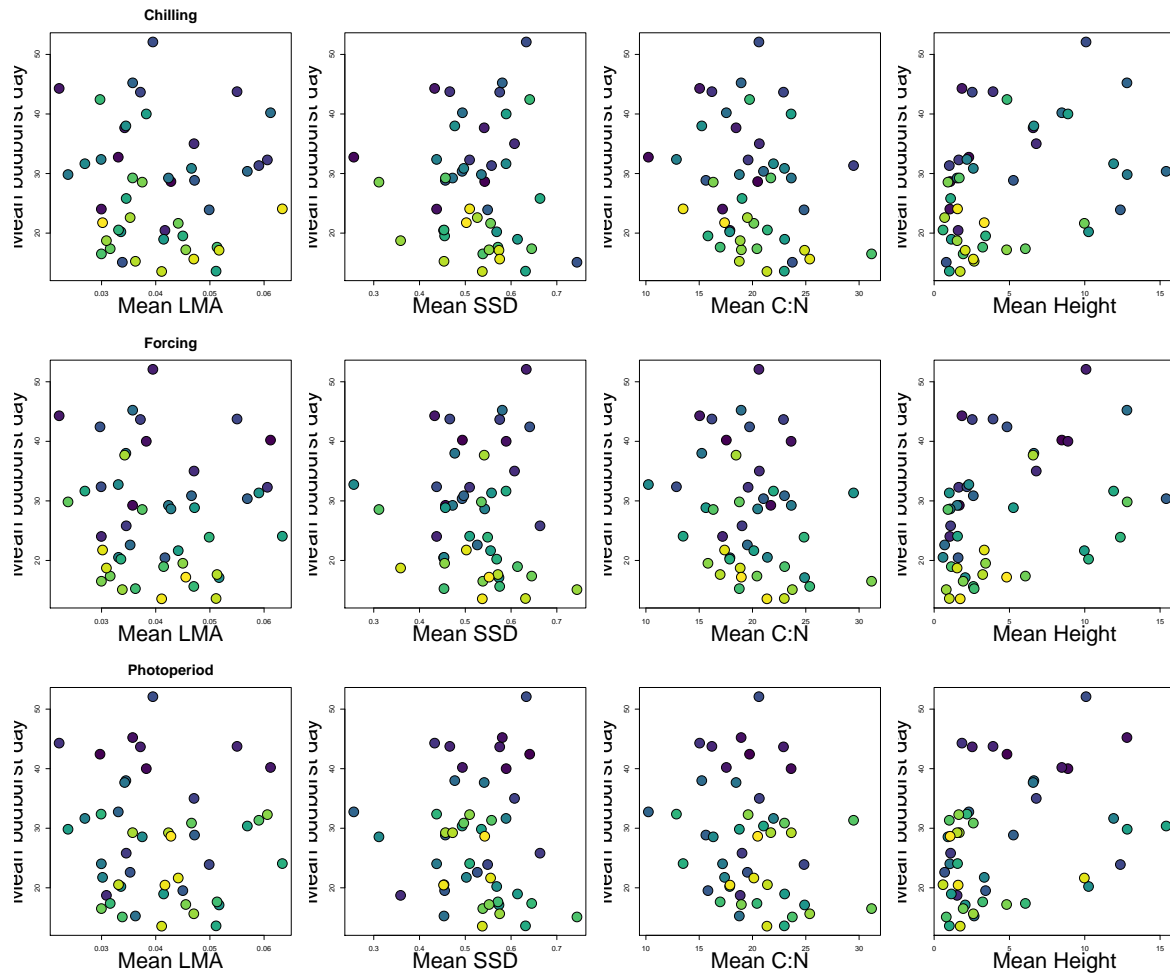22   4. Likely most driven by shrub vs tree differences

Figure 4: Relationship between mean species trait value and mean budburst day, with point colours representing chilling cues (a-c), forcing cues = (d-f), and photoperiod cues (g-hi). All cue responses were negative. Purple points are more negative, with a strong trait response, while yellow points are weaker.

23   1. One challenge in interpreting these plots is that our western transect is mostly shrubs, while the
24   eastern transect is mostly trees

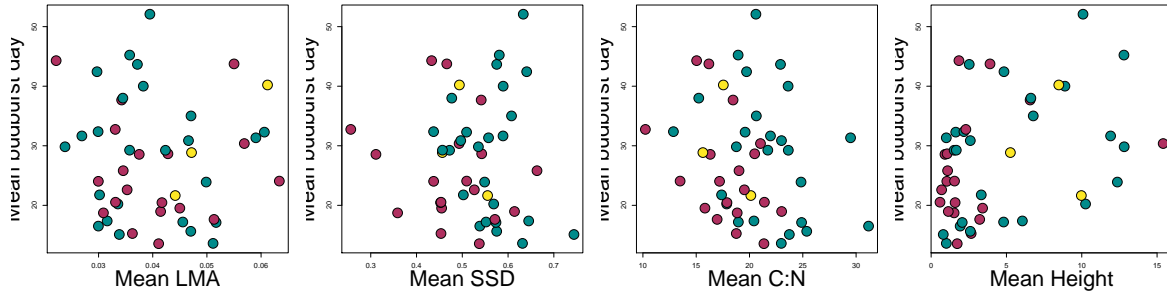25   2. No clear trends with traits and transects (Fig. 5)

Figure 5: Relationship between mean species trait value and species mean budburst days. Point colours representing different transects, with the eastern transect shown in teal and the western transect shown in maroon, with species growing in both regions shown in yellow.

26   1. Interesting convergence on chilling responses for taller species

27   2. Fagus is an outlier with strong chilling and photoperiod responses

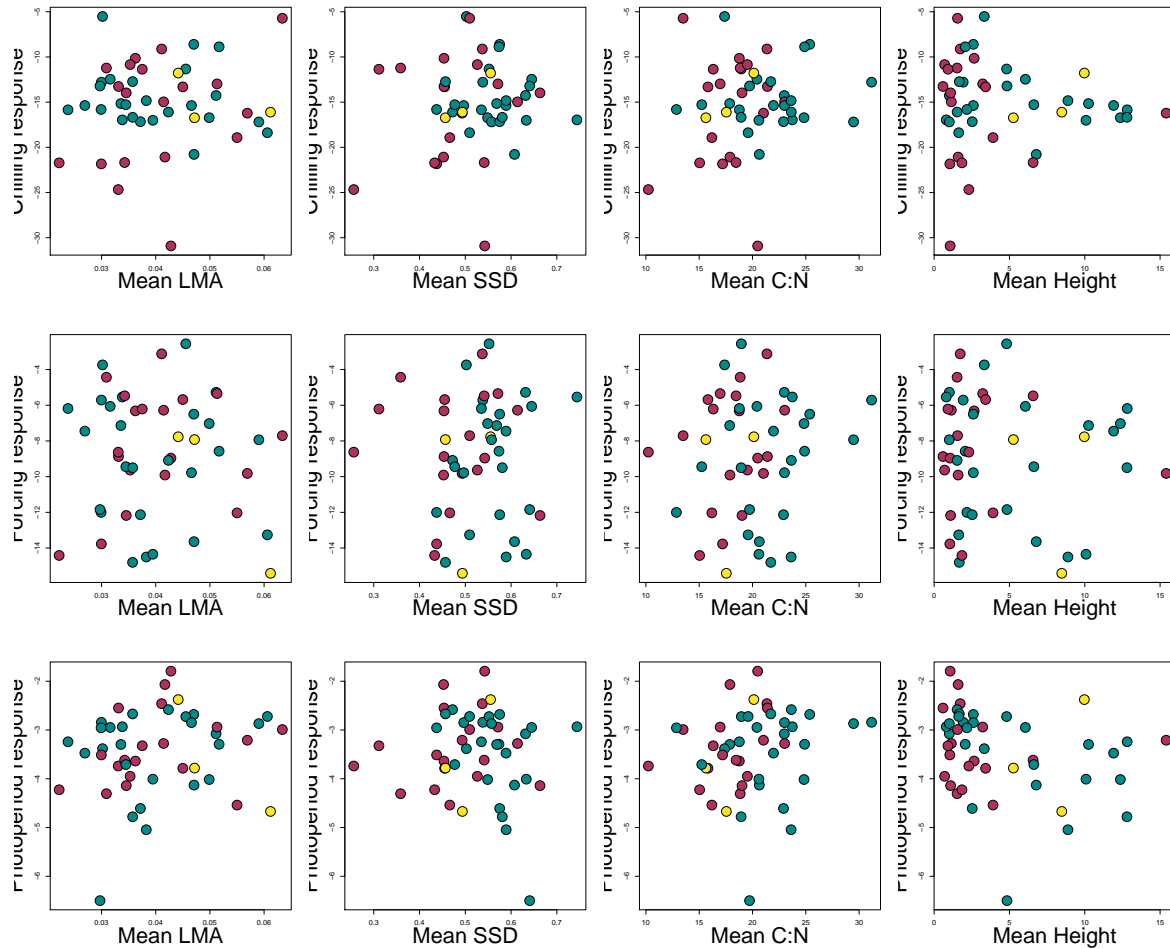28   3. No clear trends with traits and transects (Fig. **??**)

Figure 6: Relationship between mean species trait value and mean budburst day, with point colours representing chilling cues (a-c), forcing cues = (d-f), and photoperiod cues (g-hi). All cue responses were negative. Point colours representing different transects, with the eastern transect shown in teal and the western transect shown in maroon, with species growing in both regions shown in yellow.

₂₉   1. No clear trends for LMA, SSD, or C:N

₃₀   2. Slight trend for height, with shrubs bb earlier than trees (Fig. 7)
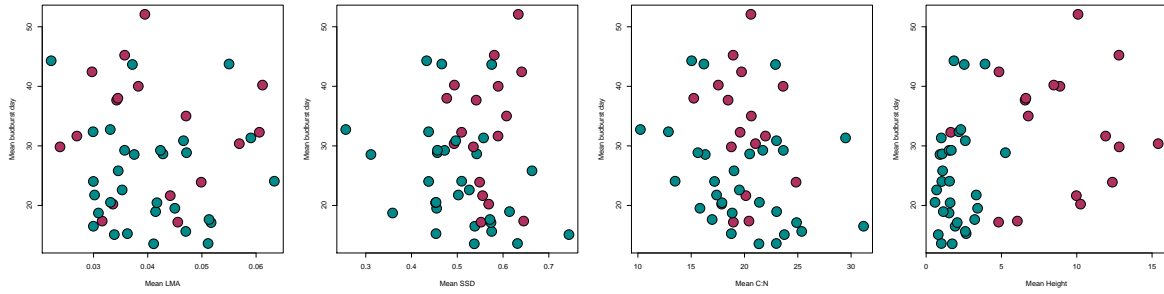

Figure 7: Relationship between mean species trait value and mean budburst, with chilling (a-c), forcing (d-f), and photoperiod cues (g-i). Point colours representing different species groups, tree species are depicted in maroon and shrub species in teal.

31   1. No clear trends for LMA, SSD, or C:N

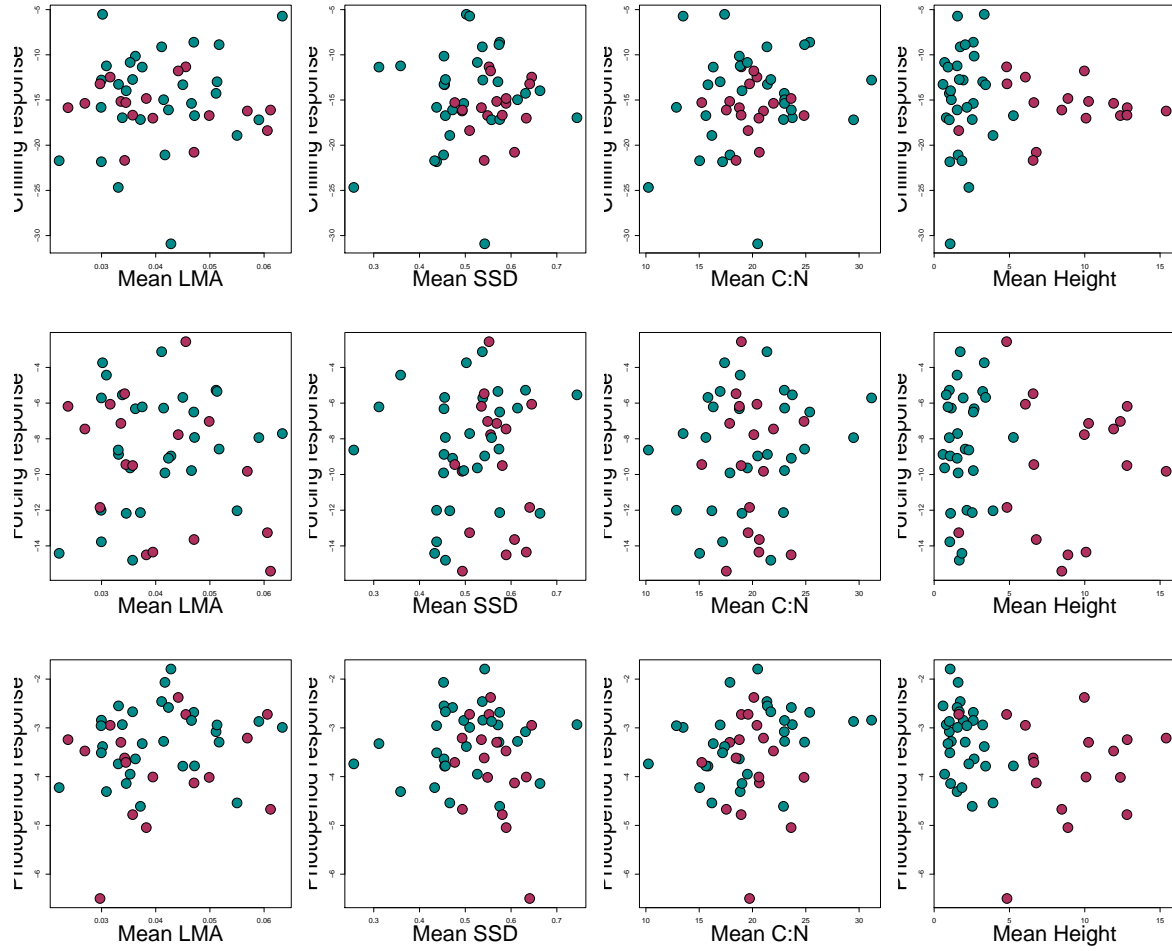32   2. Slight trend for height, with shrubs bb earlier than trees (Fig. 7)

Figure 8: Relationship between mean species trait value and cue responses, with chilling (a-c), forcing (d-f), and photoperiod cues (g-i). Point colours representing different species groups, tree species are depicted in maroon and shrub species in teal.