Regional Risk: Supplement

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Species rate of budburst calculations

1. We used data from a growth chamber experiment (Flynn2018) to determine the average number of days between budburst and leafout for our study specices.

2. Cuttings for the experiment were made in January 2015 from two field sites: Harvard Forest (HF, 42.5°N, 72.2°W) and the Station de Biologie des Laurentides in St-Hippolyte, Québec (SH, 45.9°N, 74.0°W).

3. The experiment examined budburst and leafout for Acer saccharum (Marshall), Alnus incana (L.), *Betula papyrifera* (Marshall), *Fagus grandifolia* (Ehrh.), *Fraxinus nigra* (Marshall), and *Quercus alba* (L.) in a fully crossed design of three levels of chilling (field chilling, field chilling plus 30 days at either 1 or 4 °C), two levels of forcing (20°C/10°C or 15°C/5°C day/night temperatures, such that thermoperiodicity followed photoperiod) and two levels of photoperiod (8 versus 12 hour days) resulting in 12 treatment combinations.

4. Phenological observations of each cutting were made every 2-3 days over 82 days.

5. Phenology was assessed using a BBCH scale that was modified for trees (**?**).

6. We used data from *Acer saccharum* for *Aesculus hippacastanum* (**?**), *Alnus incana* for *Alnus glutinosa*, *Betula papyrifera* for *Betula pendula* (**?**), *Fagus grandifolia* for *Fagus sylvatica*, *Fraxinus nigra* for *Fraxinus excelsior* and *Quercus alba* for *Quercus robur* (**?**).

Supplement: Tables and Figures

Table 1: Data points collected for each species

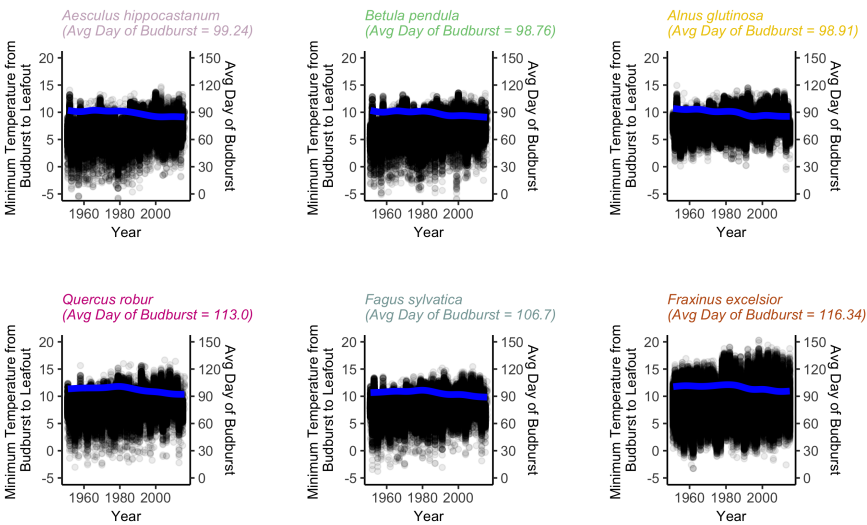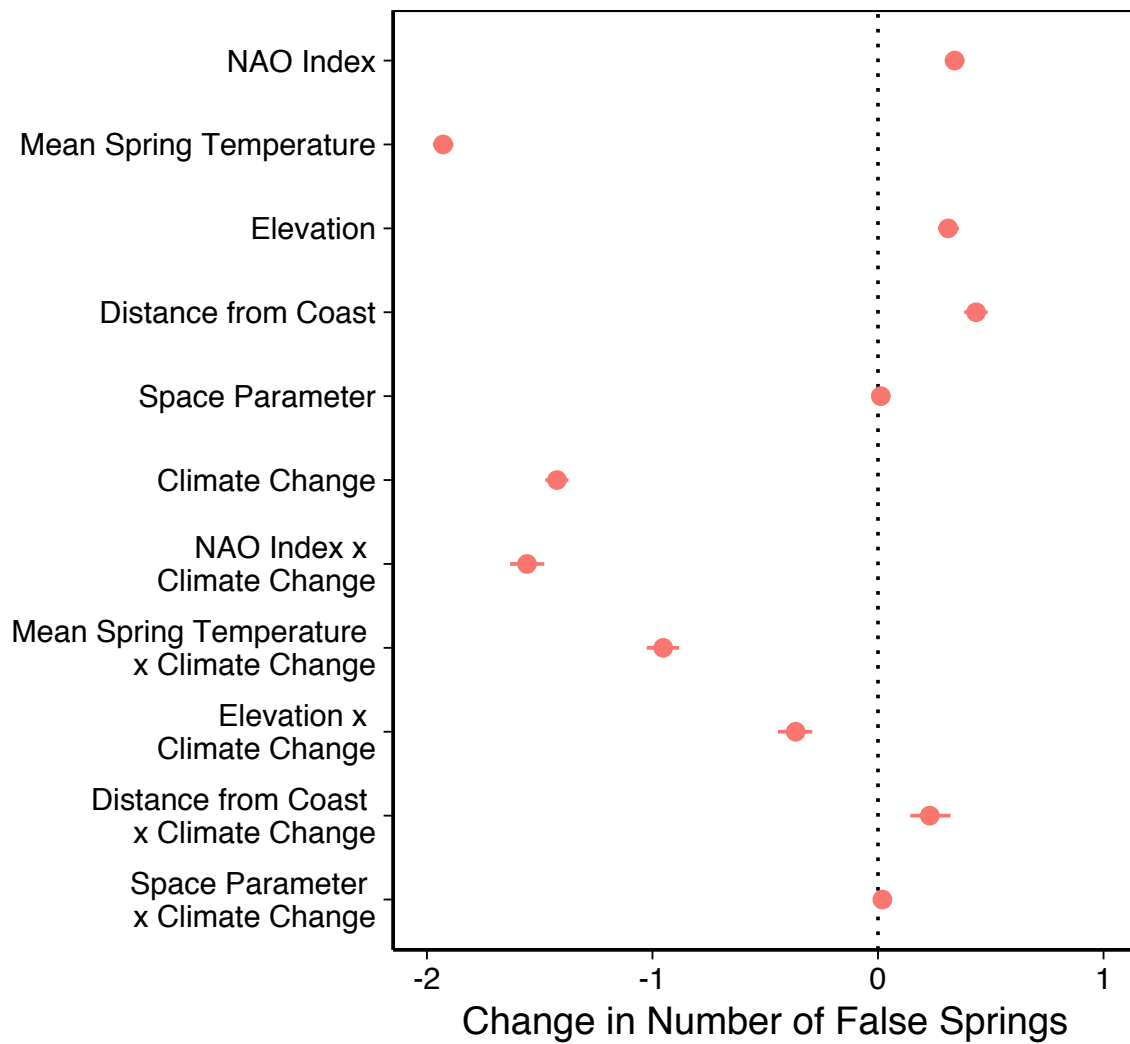| Species	Num. of Observations	Num. of Sites	Num. of Years
Aesculus hippocastanum	156836	10158	66
Alnus glutinosa	91182	6775	66
Betula pendula	155251	10139	66
Fagus sylvatica	129133	9099	66
Fraxinus excelsior	92665	7327	65
Quercus robur	131635	8811	66

Figure 1

Figure 2: Model output with different durations of vegetative risk for each species. More positive parameter effects indicate an increased probability of a false spring whereas more negative effects suggest a lower probability of a false spring. Uncertainly intervals are at 50%. Parameter effects closer to zero have less of an effect on false springs.
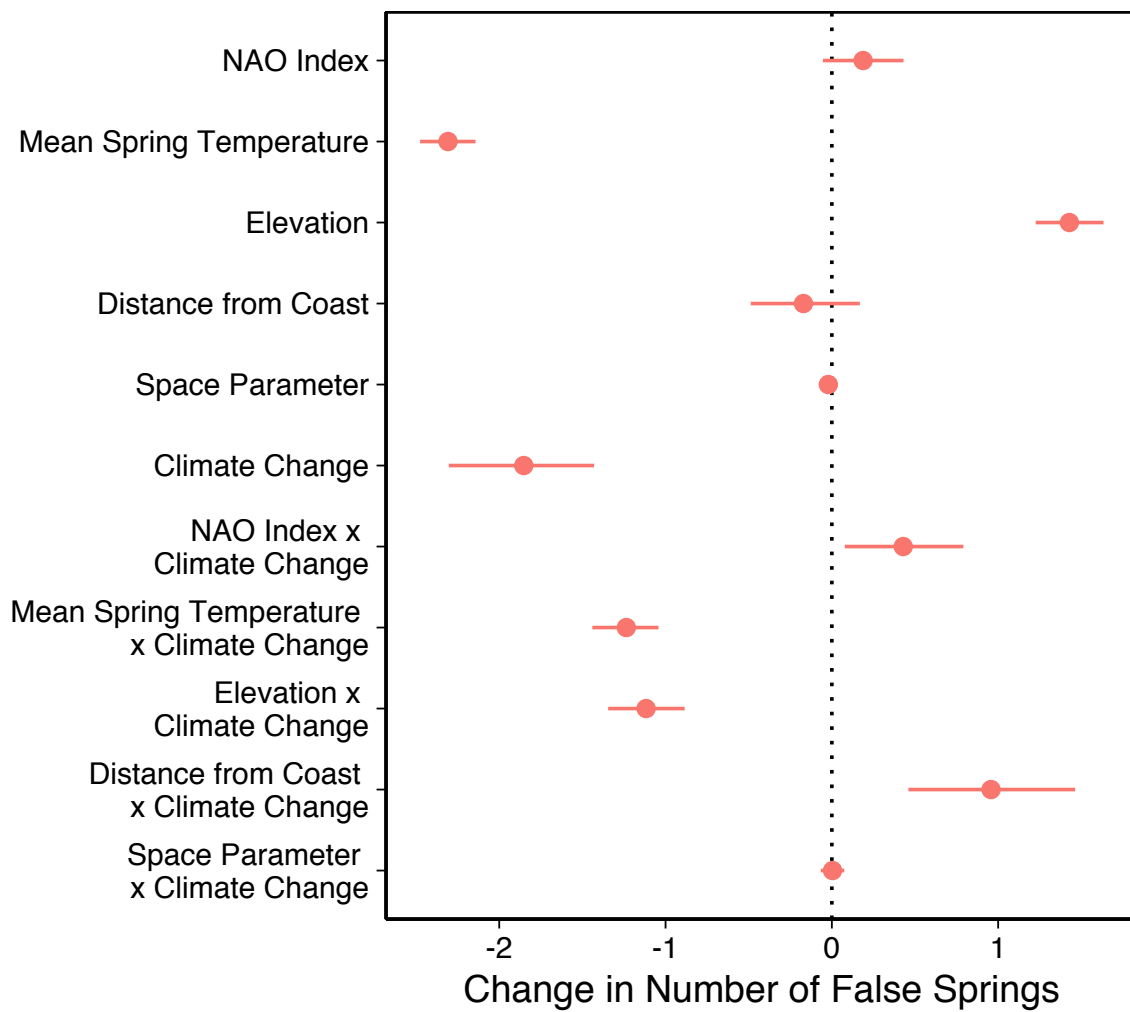
Figure 3