

Supplementary table S2. Model selection for basal area increment (BAI) in the studied invasive (*Ailanthus altissima* and *Robinia pseudoacacia*) and native (*Fraxinus angustifolia* and *Ulmus minor*) species. A null model treating BAI as a constant was also tested. The selected model is highlighted in bold. M, number of the model; K, number of explaining variables plus one constant plus the error; ΔAIC_c , difference in AIC_c (Akaike information criterion corrected for small samples) with respect to the best model. (+)/(-) denote positive or negative effects, respectively, of the variables. Variables are defined as follows: Tmax (average maximum temperature); Tmin (average minimum temperature); T (average temperature); RFJul (river flow); DF (days with frost) and P (precipitation) in a certain month (Jan, Feb, Mar, Apr, Jun, Jul, Aug, Sep, Oct, Nov, Dec). Prev: value of a variable in that month of the previous year

Species	M	Growth model (variables)	K	AIC_c	ΔAIC_c
<i>Ailanthus altissima</i> Trees= 11 N= 424	1	PJul+TminFeb-TmaxOct	5	3192.54	0.00
	2	PJul+TminFeb-TmaxOct+TminDec	6	3193.04	0.50
	3	PJul-TmaxOct+TminDec	5	3193.30	0.76
	4	PJul-TmaxOct+TminDec+TmaxJul+TminFeb	7	3194.83	2.29
	5	PJul-TmaxOct+TminDec-TmaxPrevJun+TminFeb	7	3195.66	3.12
	6	PJul-TmaxOct	4	3196.34	3.80
	7	PJul-TmaxOct+TminDec-TmaxPrevJun+TminFeb+TmaxJul	8	3197.26	4.73
	8	null model	2	3199.89	7.36
	9	PJul-TmaxOct+TminDec-TmaxPrevJun+TminFeb+TmaxJul+ PDec	9	3205.22	12.69
<i>Robinia pseudoacacia</i> Trees= 9 N= 405	1	-TminOct	3	2206.78	0.00
	2	PApr-TminOct	4	2207.74	0.96
	3	null model	2	2208.64	1.86
	4	PAbr	3	2208.76	1.98
	5	PApr-TminOct+TmaxPrevNov	5	2208.84	2.06
	6	PApr-TminOct+TmaxPrevNov+PSep	6	2217.35	10.57
<i>Fraxinus angustifolia</i> Trees= 10 N= 227	1	TmaxSep+TminJan+TminPrevApr+RFMar+RFAug	7	1712.91	0.00
	2	TmaxSep+TminJan+TminPrevApr+ RFMar+RFAgo-TminJul	8	1713.54	0.63
	3	TmaxSep+TminPrevApr+RFMar+RFAgo	6	1715.64	2.73
	4	TmaxSep+TminJan+TminPrevApr+RFMar+RFAgo+PPrevNov	8	1720.38	7.47
	5	TmaxSep+TminJan+TminPrevApr+RFMar+RFAgo-TminJul+PPrevNov	9	1720.56	7.66
	6	TmaxSep+TminJan+TminPrevApr+RFMar+RFAgo-TminJul+PPrevNov+ DFannual	10	1725.69	12.78
	7	null model	2	1774.16	61.26

<i>Ulmus minor</i> Trees= 10 N=392	1	TmaxDec+TSep+TmaxPrevSep+TmaxNov+RFPprevMay+PApr+-RFPprevApr-DFprevApr-DFMay-DFprevMay-DFOct	13	3441.67	0.00
	2	TmaxDec+TSep+TmaxPrevSep+TmaxNov+RFPprevMay+PApr+DFMay+DFOct	10	3442.29	0.61
	3	TmaxDec+TSep+TmaxNov+RFPprevMay+PApr-DFMay-DFOct	9	3443.18	1.51
	4	TmaxDec+TSep+TmaxPrevSep+TmaxNov+RFPprevMay+PAbr- RFPprevApr-DFMay-DFOct	11	3444.40	2.73
	5	TmaxDec+TSep+RFPprevMay+PApr-DHMay-DFOct	8	3445.09	3.41
	6	TmaxDec+TSep+TmaxNov+ RFPprevMay-PApr-DFOct	8	3446.09	4.41
	7	TmaxDec+TSep+RFPprevMay+PApr-DFOct	7	3447.00	5.33
	8	null model	2	3447.74	6.07