

1 Supporting information A

Publications considering the different endpoints as relevant (Yes) or not (No) to track the effects of chemical stress and competition.

Endpoint	Chemical stress effect	Competition effect
Shoot height	Yes: [1, 2]	Yes: [3, 4, 5]
Root length	Yes: [1, 2]	Yes: [3, 6]
Shoot DM	Yes: [7, 8, 9, 10]	Yes: [11]
Root DM	Yes: [7, 8, 9, 10]	Yes: [11]
Total DM	Yes: [7, 8, 9, 10]	Yes: [11, 12, 13]
Root DM/shoots DM	Yes: [14]	Yes: [11, 12]
LDMC	No information found	Yes: [5] No: [3]
SLA	Yes: [15]	Yes: [3, 5, 4]
PSII efficiency (Fv/Fm)	Yes: [16, 17]	Yes: [18, 19, 20]
Chlorophyll content	Yes: [1, 17]	Yes: [18] No: [21, 22]
Carotenoid content	Yes: [1, 17]	Yes: [22]
Ligula height	Yes: [23]	Yes: [24]

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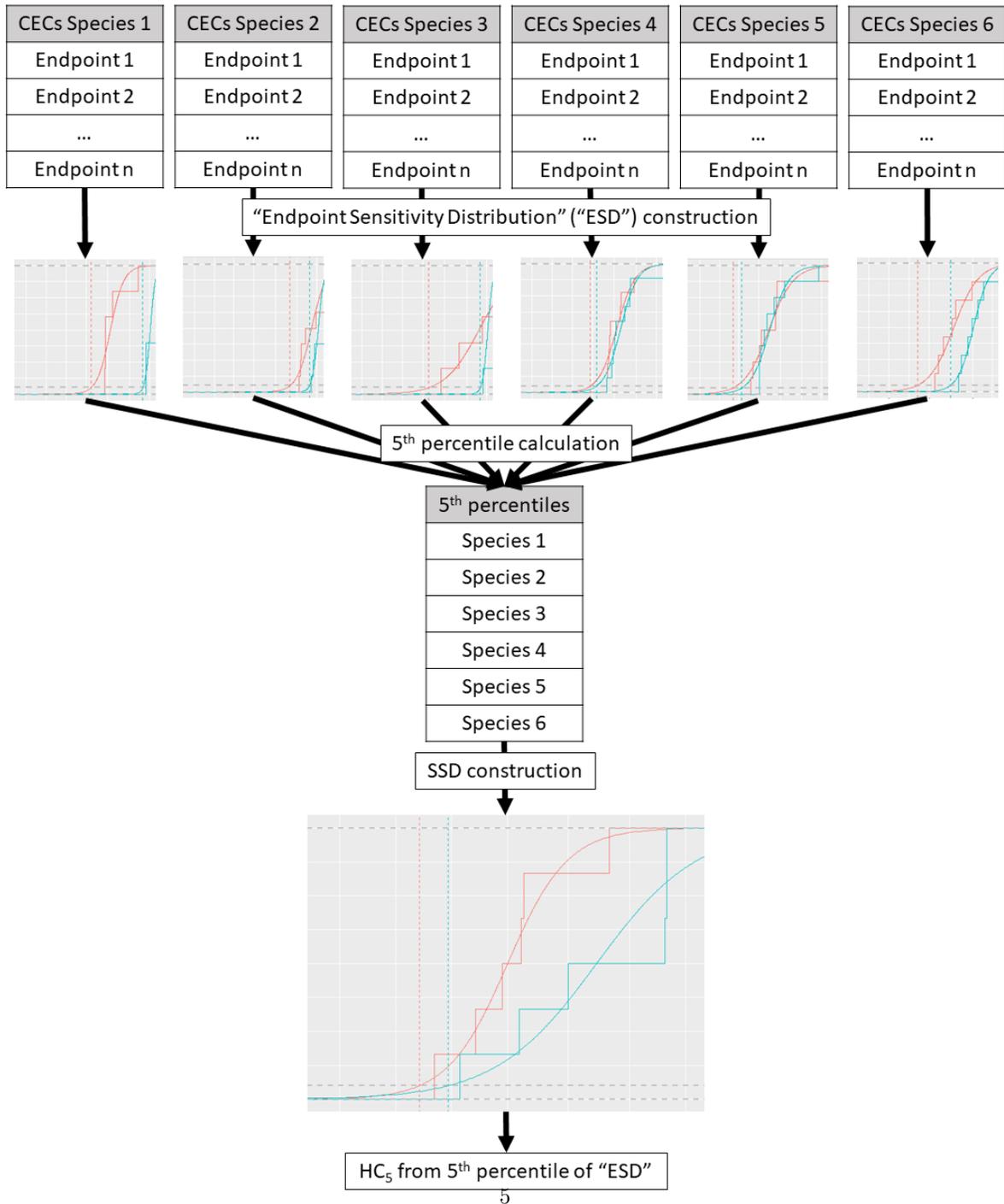
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2 Supporting information B

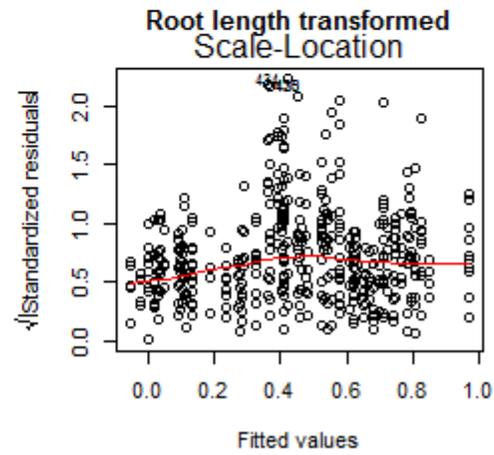
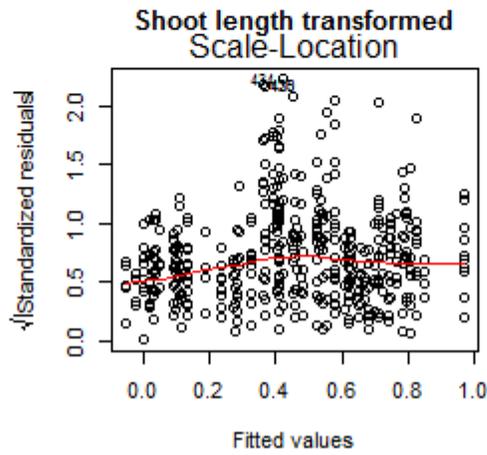
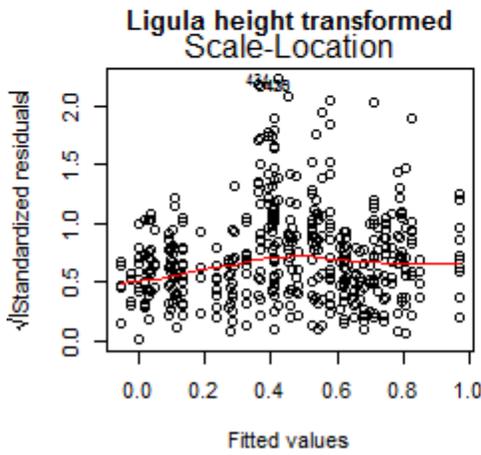
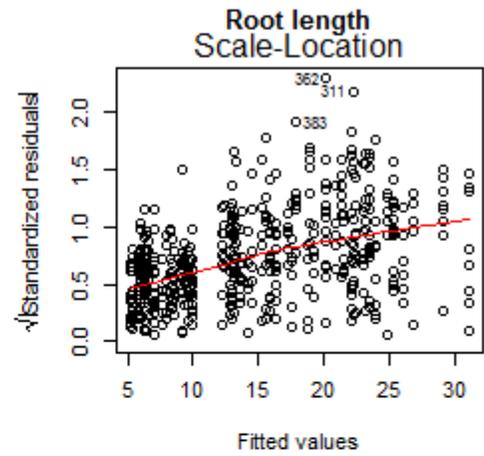
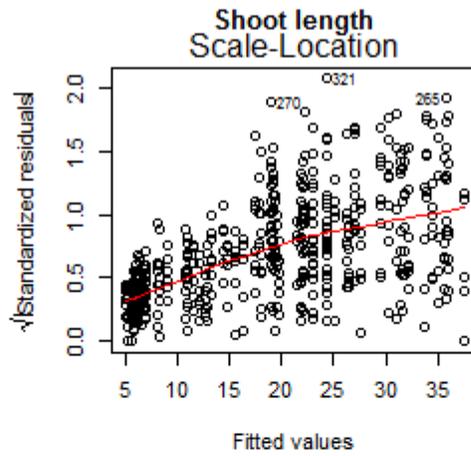
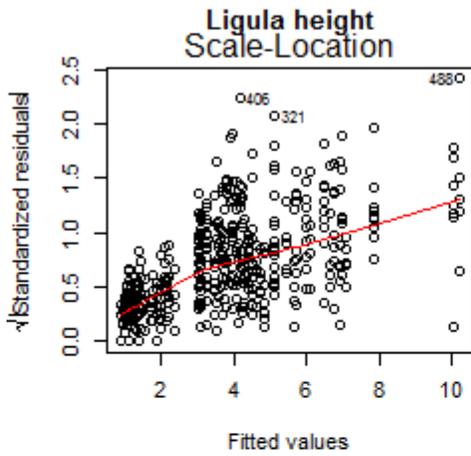
Scheme describing the procedure applied to build SSDs using the ESD method to handle multiple CEC values.



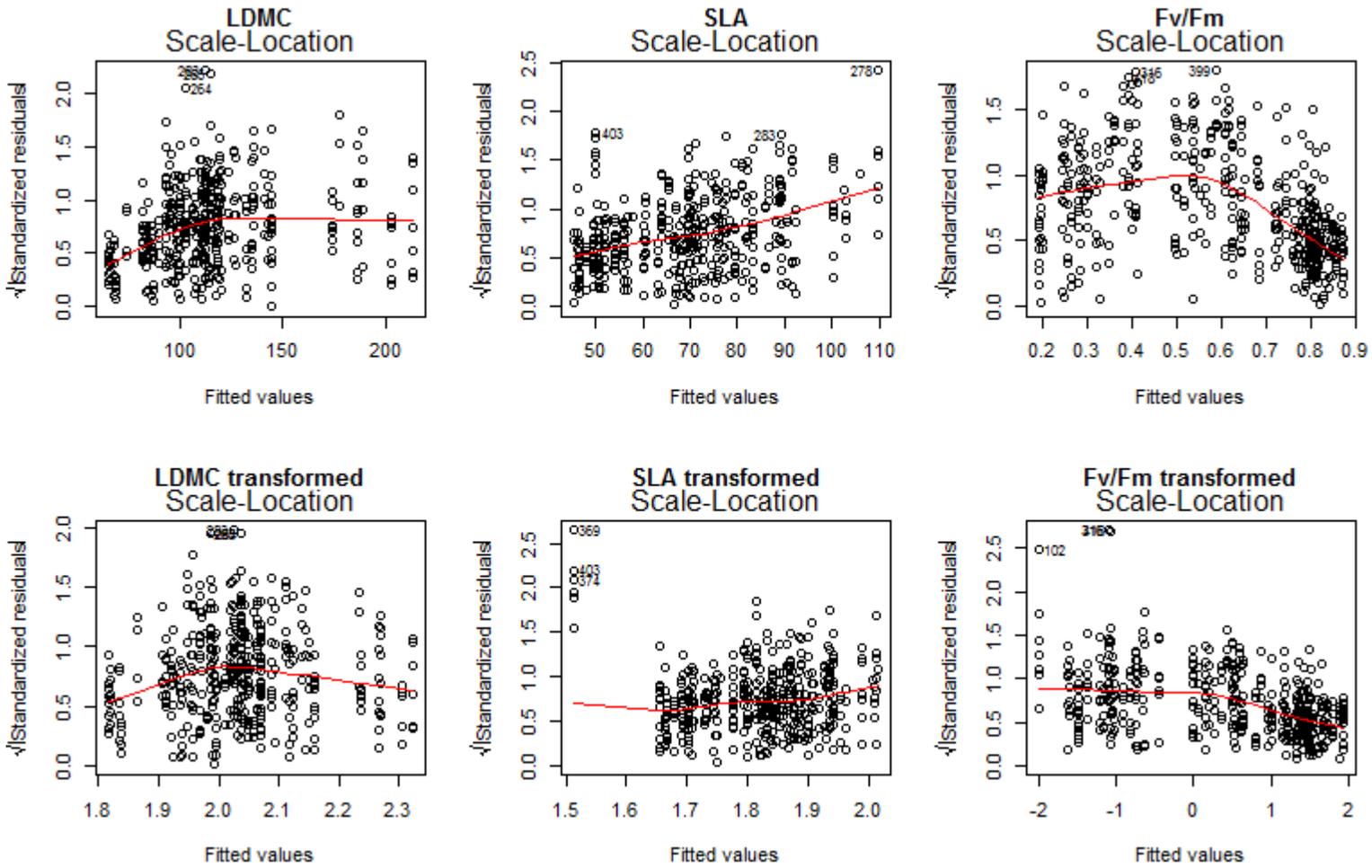
3 Supporting information C

Scale-location plots before and after transformation for each endpoint, to highlight the effect of transformation on residuals.

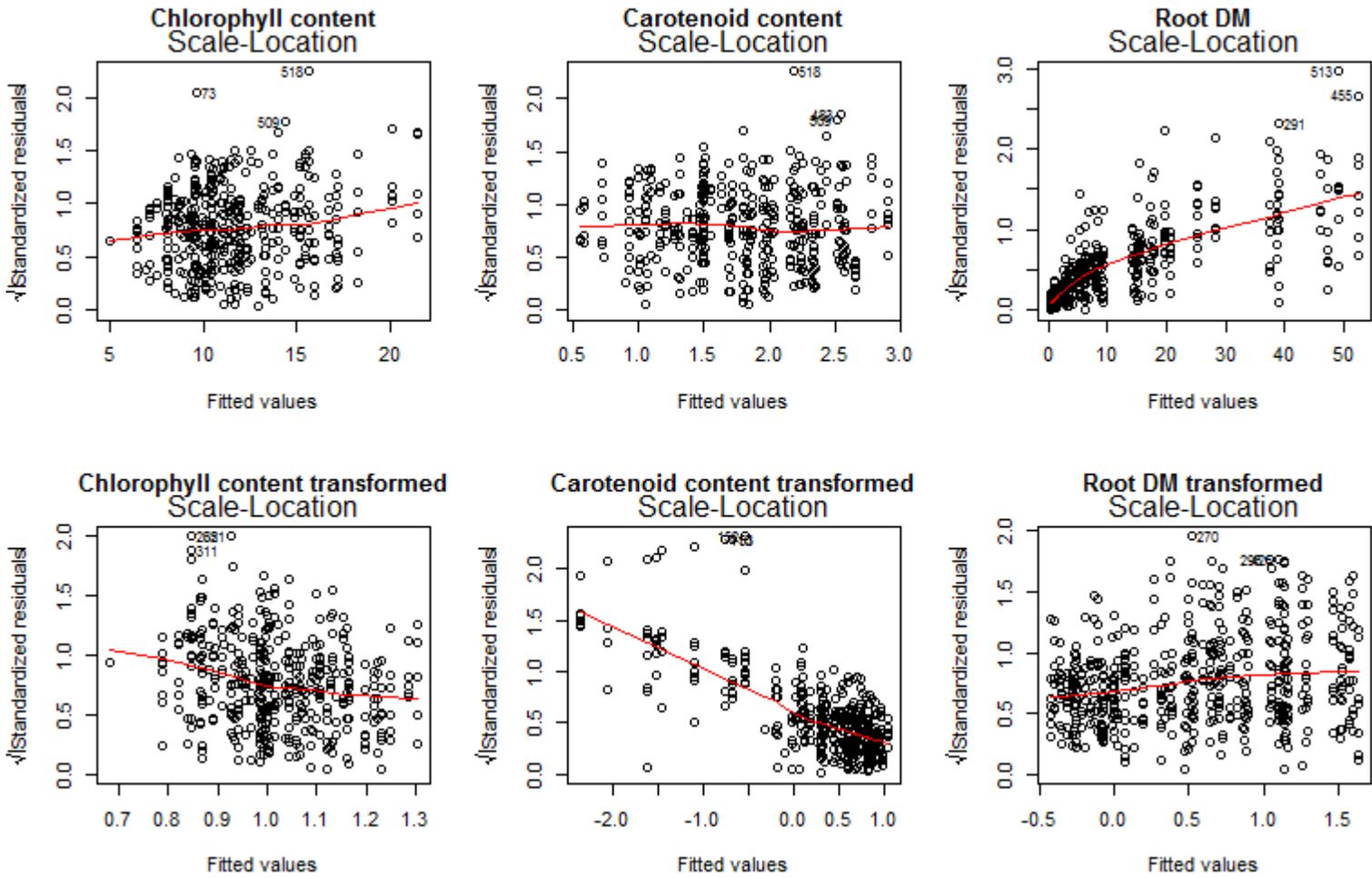
Scale-location plots before and after transformation for ligula height, shoot length and root length endpoints.



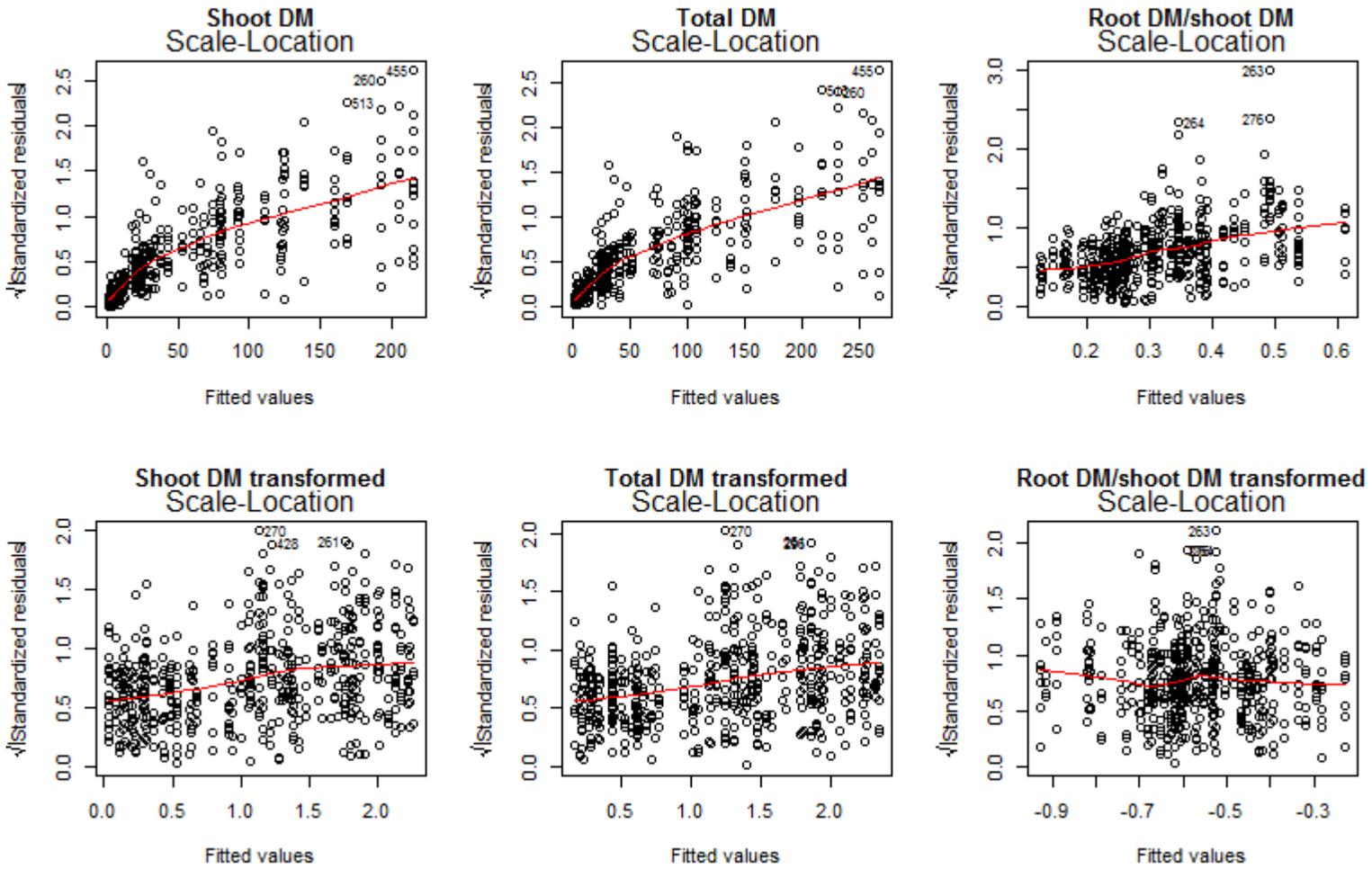
Scale-location plots before and after transformation for LDMC, SLA and Fv/Fm endpoints.



Scale-location plots before and after transformation for chlorophyll content, carotenoid content and root DM endpoints.



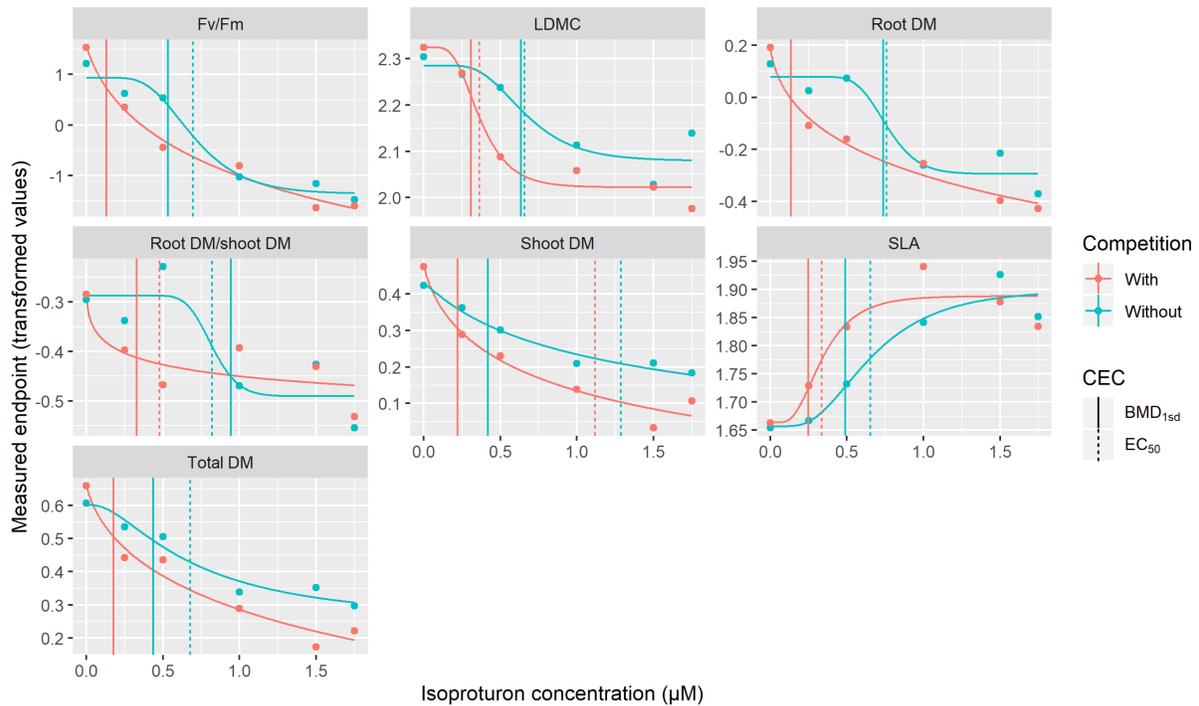
Scale-location plots before and after transformation for shoot DM, total DM and root DM/shoot DM endpoints.



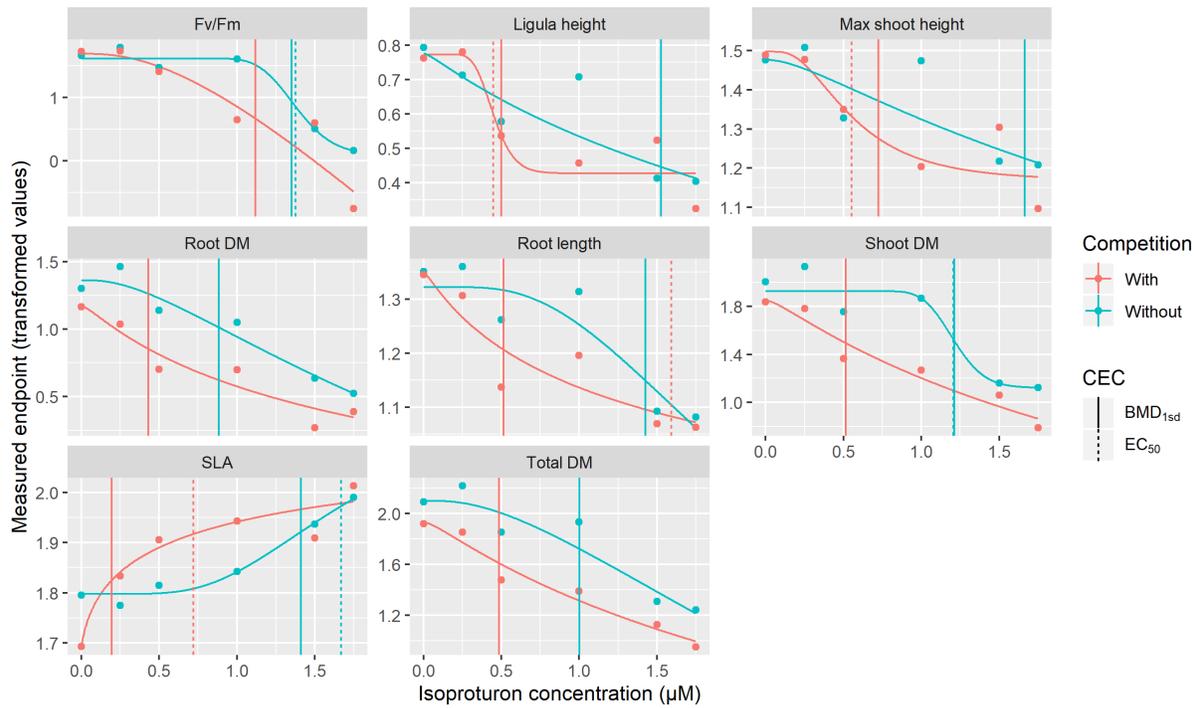
4 Supporting information D

Models fitted for the different tested species. On each graph, the points represent the mean of data for each concentration and the curves the fitted models. In blue are the data without competition and in red the data with competition. The dashed vertical lines represent the EC_{50} levels and the plain vertical lines the BMD_{1sd} levels. EC_{10} and BMD_{2sd} are not displayed here to avoid overloading the figure.

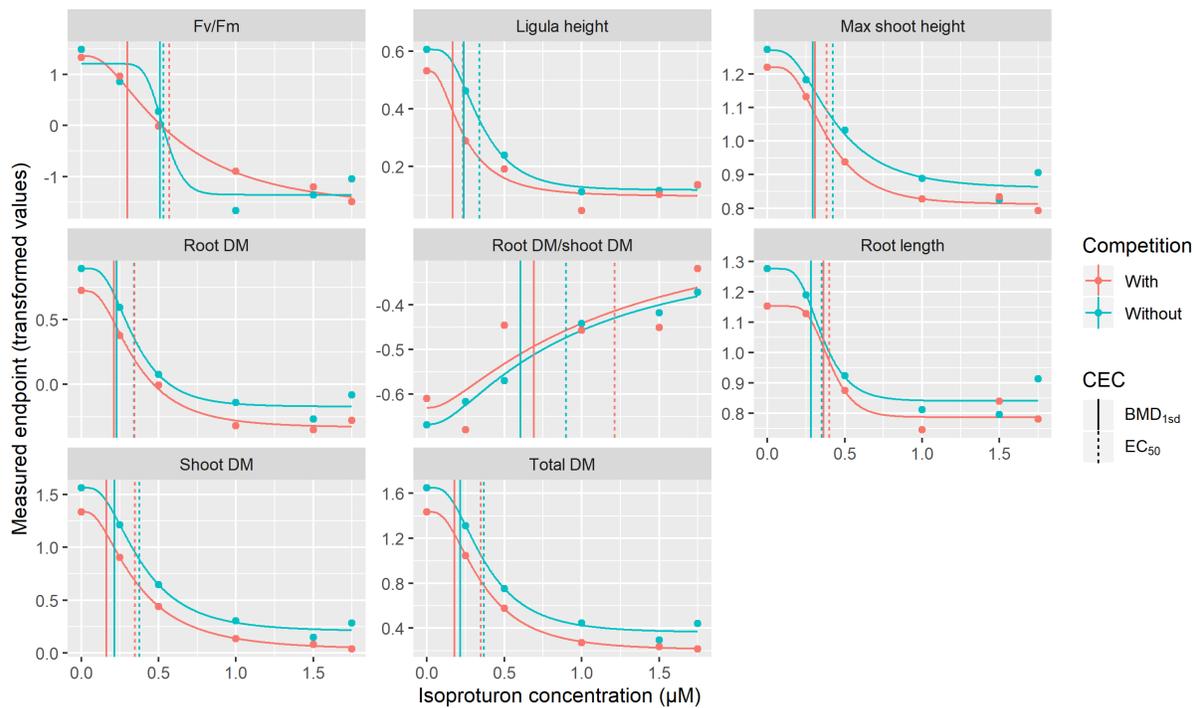
Models fitted for the different endpoints selected for *T. flavescens*. On each graph, the points represent the mean of data for each concentration and the curves the fitted models. In blue are the data without competition and in red the data with competition. The dashed vertical lines represent the EC_{50} levels and the plain vertical lines the BMD_{1sd} levels. EC_{10} and BMD_{2sd} are not displayed here to avoid overloading the figure.



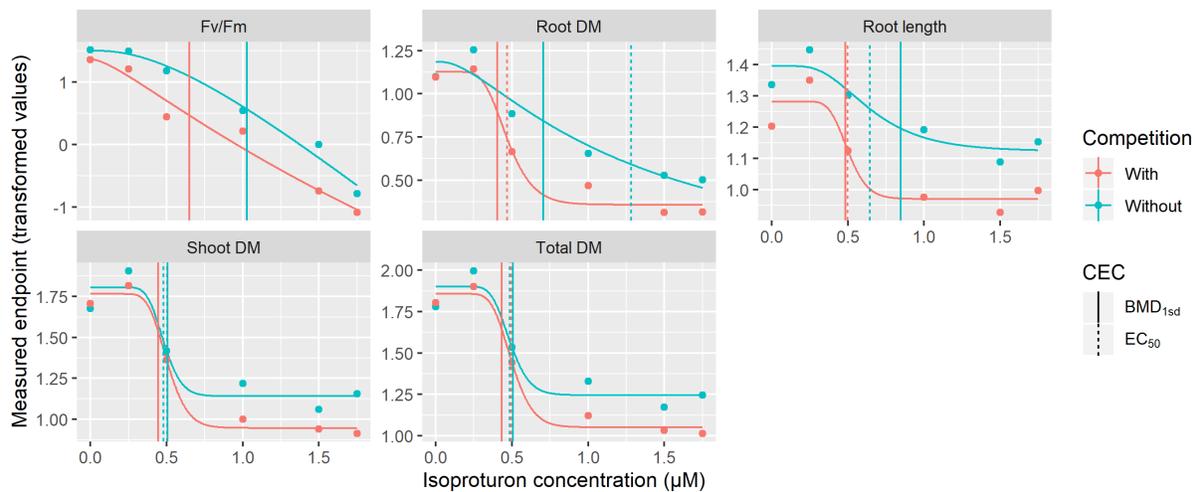
Models fitted for the different endpoints selected for *D. glomerata*. On each graph, the points represent the mean of data for each concentration and the curves the fitted models. In blue are the data without competition and in red the data with competition. The dashed vertical lines represent the EC_{50} levels and the plain vertical lines the BMD_{1sd} levels. EC_{10} and BMD_{2sd} are not displayed here to avoid overloading the figure.



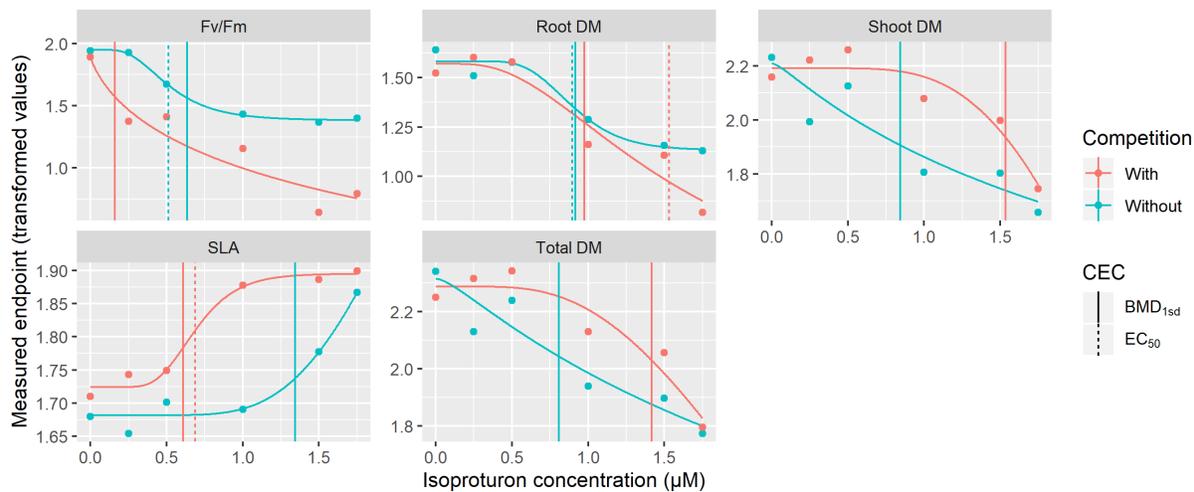
Models fitted for the different endpoints selected for *Poa trivialis*. On each graph, the points represent the mean of data for each concentration and the curves the fitted models. In blue are the data without competition and in red the data with competition. The dashed vertical lines represent the EC_{50} levels and the plain vertical lines the BMD_{1sd} levels. EC_{10} and BMD_{2sd} are not displayed here to avoid overloading the figure.



Models fitted for the different endpoints selected for *A. elatius*. On each graph, the points represent the mean of data for each concentration and the curves the fitted models. In blue are the data without competition and in red the data with competition. The dashed vertical lines represent the EC₅₀ levels and the plain vertical lines the BMD_{1sd} levels. EC₁₀ and BMD_{2sd} are not displayed here to avoid overloading the figure.



Models fitted for the different endpoints selected for *L. multiflorum*. On each graph, the points represent the mean of data for each concentration and the curves the fitted models. In blue are the data without competition and in red the data with competition. The dashed vertical lines represent the EC_{50} levels and the plain vertical lines the BMD_{1sd} levels. EC_{10} and BMD_{2sd} are not displayed here to avoid overloading the figure.



5 Supporting information E

Responsive endpoints for the different tested species and the corresponding CEC values (in μM) calculated. For each endpoint, species and CEC combination, the value before the slash is the one calculated using the data without competition and the one after the slash is calculated using the data with competition. The NAs indicate the cases where the value could not be calculated or was above the maximum tested concentration.

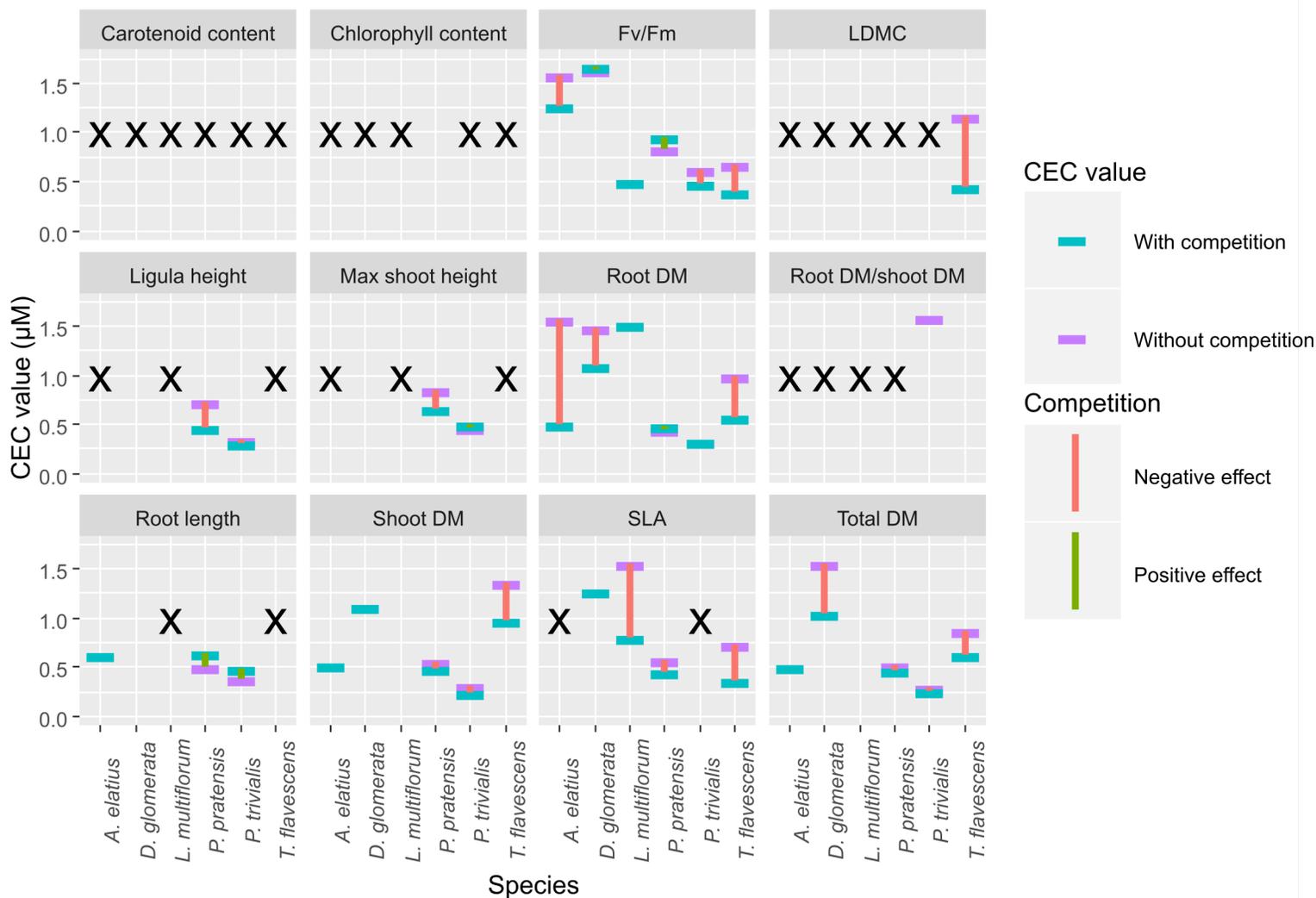
Species	CEC	<i>P. trivialis</i>	<i>P. pratensis</i>	<i>T. flavescens</i>	<i>A. elatius</i>	<i>L. multiflorum</i>	<i>D. glomerata</i>
Ligula height	EC ₁₀	0.17/0.09	0.51/0.23				0.78/0.33
	EC ₅₀	0.34/0.23	0.79/0.54				NA/0.45
	BMD _{1sd}	0.24/0.17	0.60/0.31				1.53/0.50
	BMD _{2sd}	0.35/0.31	0.73/0.46				NA/NA
Max shoot height	EC ₁₀	0.19/0.19	0.49/0.38				0.72/0.25
	EC ₅₀	0.42/0.38	0.69/0.68				NA/0.55
	BMD _{1sd}	0.30/0.31	0.64/0.49				1.66/0.72
	BMD _{2sd}	0.46/0.50	0.85/0.66				NA/NA
Root length	EC ₁₀	0.21/0.27	0.29/0.39		0.36/0.38		1.05/0.15
	EC ₅₀	0.35/0.40	0.49/0.51		0.64/0.50		NA/1.59
	BMD _{1sd}	0.28/0.36	0.39/0.49		0.85/0.48		1.43/0.52
	BMD _{2sd}	0.38/0.49	0.51/0.65		NA/0.63		NA/NA
LDMC	EC ₁₀			0.40/0.21			
	EC ₅₀			0.66/0.36			
	BMD _{1sd}			0.64/0.31			
	BMD _{2sd}			1.16/0.45			
SLA	EC ₁₀		0.36/0.20	0.33/0.18		1.68/0.46	0.94/0.03
	EC ₅₀		0.48/0.38	0.65/0.34		NA/0.69	1.67/0.72
	BMD _{1sd}		0.45/0.30	0.49/0.25		1.34/0.61	1.41/0.20
	BMD _{2sd}		0.58/0.45	0.73/0.36		1.55/0.81	NA/1.27
Fv/Fm	EC ₁₀	0.42/0.20	0.46/0.40	0.43/0.11	NA/1.09	0.29/0.16	1.15/NA
	EC ₅₀	0.53/0.57	0.64/0.69	0.69/NA	NA/NA	0.51/NA	1.38/NA
	BMD _{1sd}	0.51/0.30	0.61/0.61	0.53/0.13	1.03/0.65	0.64/0.16	1.35/1.12
	BMD _{2sd}	0.62/0.48	0.84/0.95	0.68/0.39	1.59/1.27	NA/0.50	1.63/1.68
Chlorophyll	EC ₁₀		0.38/0.46				
	EC ₅₀		0.49/0.56				
	BMD _{1sd}		0.57/0.60				
	BMD _{2sd}		NA/NA				
Carotenoid	EC ₁₀						
	EC ₅₀						
	BMD _{1sd}						
	BMD _{2sd}						
Root DM	EC ₁₀	0.17/0.15	0.30/0.40	0.58/0.10	0.33/0.33	0.62/0.66	0.78/0.25
	EC ₅₀	0.34/0.34	0.56/0.50	0.76/NA	1.28/0.47	0.90/1.53	NA/NA
	BMD _{1sd}	0.23/0.21	0.35/0.44	0.74/0.14	0.71/0.40	0.92/0.98	0.88/0.43
	BMD _{2sd}	0.32/0.32	0.45/0.49	0.99/0.57	1.57/0.50	NA/1.52	1.49/1.10

Shoots DM	EC ₁₀	0.17/0.13	0.41/0.32	0.14/0.06	0.38/0.38	0.46/NA	1.02/0.54
	EC ₅₀	0.38/0.35	0.65/0.61	1.29/1.12	0.48/0.50	NA/NA	1.21/NA
	BMD _{1sd}	0.21/0.16	0.46/0.37	0.42/0.22	0.51/0.44	0.84/1.53	1.21/0.52
	BMD _{2sd}	0.31/0.24	0.55/0.48	1.37/0.98	NA/0.52	NA/NA	NA/1.12
Total DM	EC ₁₀	0.17/0.15	0.39/0.33	0.22/0.12	0.37/0.37	0.57/1.54	1.22/0.55
	EC ₅₀	0.37/0.35	0.64/0.57	0.68/NA	0.49/0.50	NA/NA	NA/NA
	BMD _{1sd}	0.22/0.18	0.43/0.37	0.44/0.18	0.51/0.43	0.81/1.42	1.00/0.49
	BMD _{2sd}	0.30/0.26	0.53/0.47	0.88/0.63	NA/0.51	NA/NA	1.56/1.05
Root DM/shoots DM	EC ₁₀	0.23/0.27		0.66/0.01			
	EC ₅₀	0.90/1.21		0.82/0.48			
	BMD _{1sd}	0.60/0.69		0.95/0.33			
	BMD _{2sd}	1.58/NA		NA/NA			
Total selected		8	9	7	5	5	8

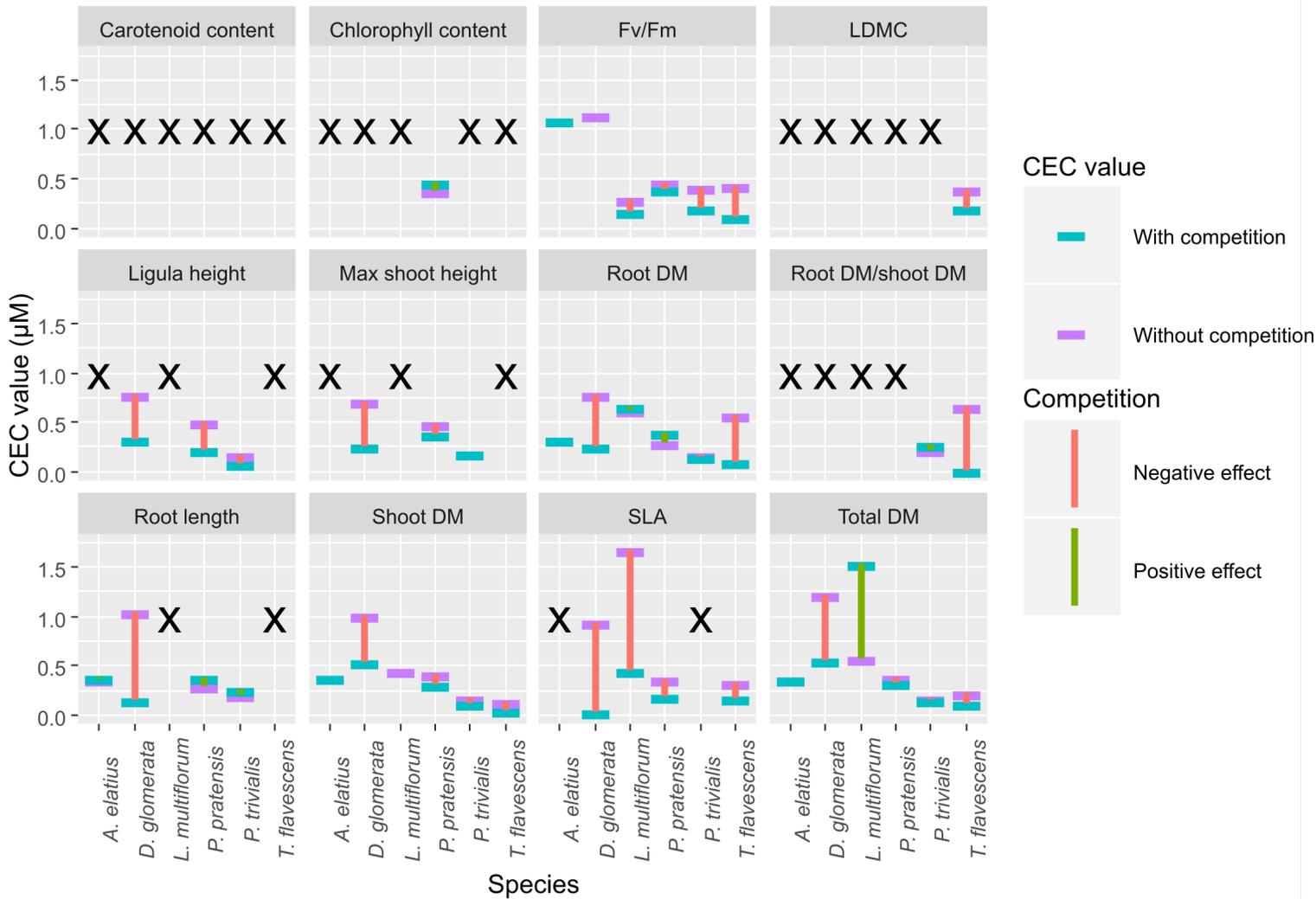
6 Supporting information F

CEC values for the different species and endpoints. A black "X" indicates that the endpoint is not selected for the considered species and that no CEC values were calculated. The purple marks are the CEC values without competition and the blue ones the values with competition. The lines linking those two marks for a given species and endpoints combination are red when competition had a negative effect on organisms tolerance (CEC with competition lower than CEC without competition) and are green when competition had a positive effect on organisms tolerance (CEC with competition higher than CEC without competition).

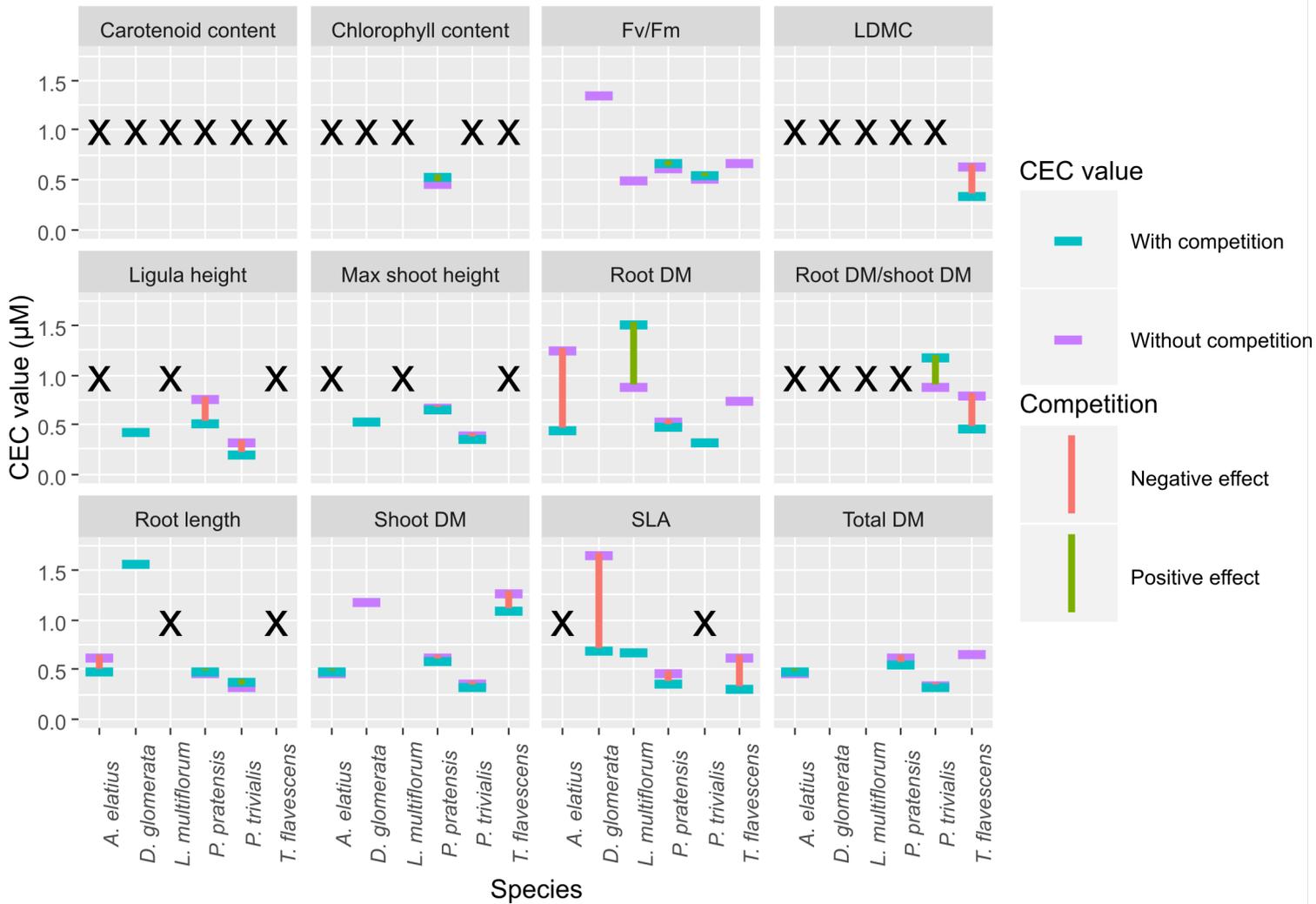
BMD_{2sd} values for the different species and endpoints. A black "X" indicates that the endpoint is not selected for the considered species and that no CEC values were calculated. The purple marks are the CEC values without competition and the blue ones the values with competition. The lines linking those two marks for a given species and endpoints combination are red when competition had a negative effect on organisms tolerance (CEC with competition lower than CEC without competition) and are green when competition had a positive effect on organisms tolerance (CEC with competition higher than CEC without competition).



EC₁₀ values for the different species and endpoints. A black "X" indicates that the endpoint is not selected for the considered species and that no CEC values were calculated. The purple marks are the CEC values without competition and the blue ones the values with competition. The lines linking those two marks for a given species and endpoints combination are red when competition had a negative effect on organisms tolerance (CEC with competition lower than CEC without competition) and are green when competition had a positive effect on organisms tolerance (CEC with competition higher than CEC without competition).



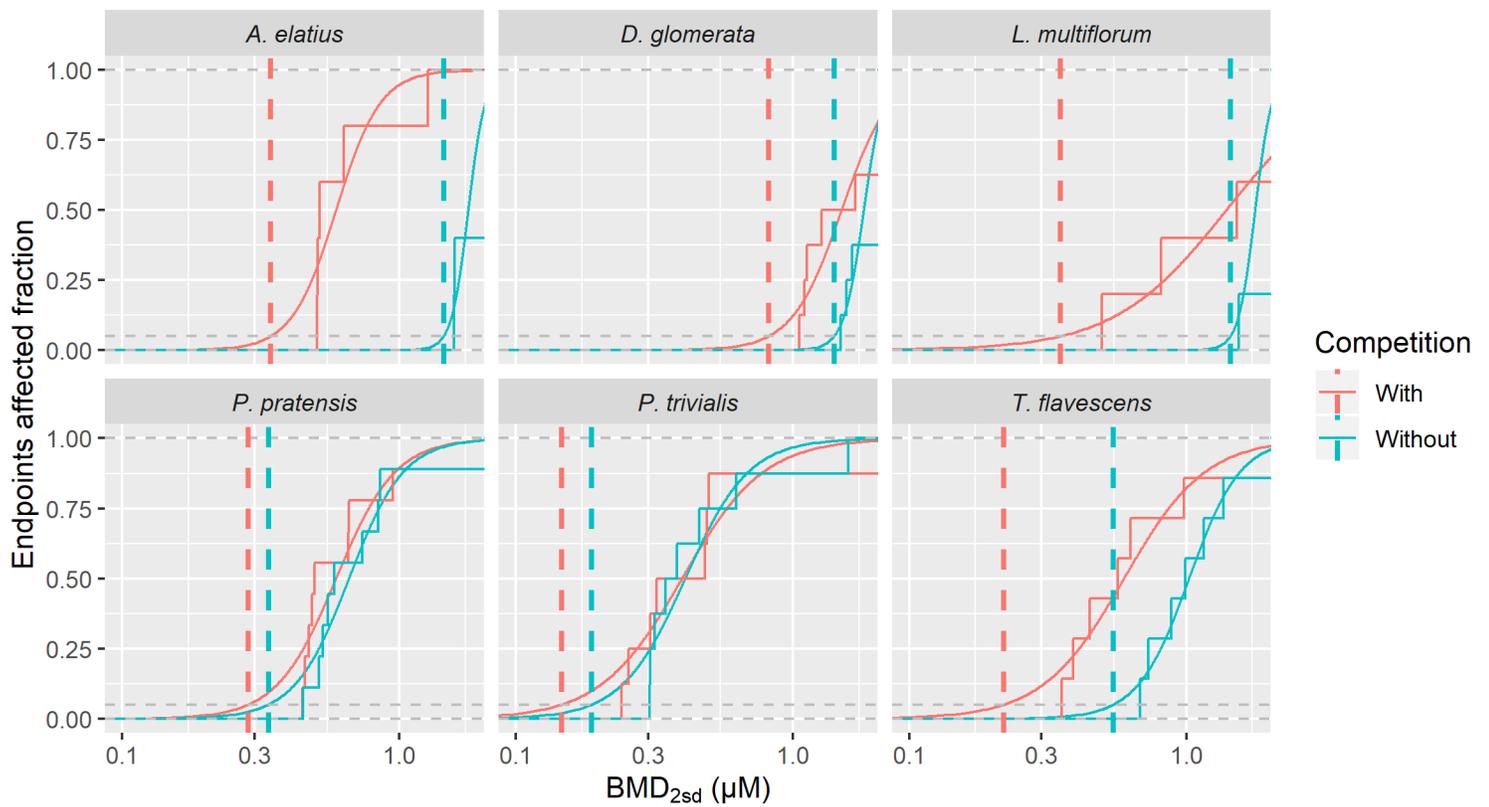
EC₅₀ values for the different species and endpoints. A black "X" indicates that the endpoint is not selected for the considered species and that no CEC values were calculated. The purple marks are the CEC values without competition and the blue ones the values with competition. The lines linking those two marks for a given species and endpoints combination are red when competition had a negative effect on organisms tolerance (CEC with competition lower than CEC without competition) and are green when competition had a positive effect on organisms tolerance (CEC with competition higher than CEC without competition).



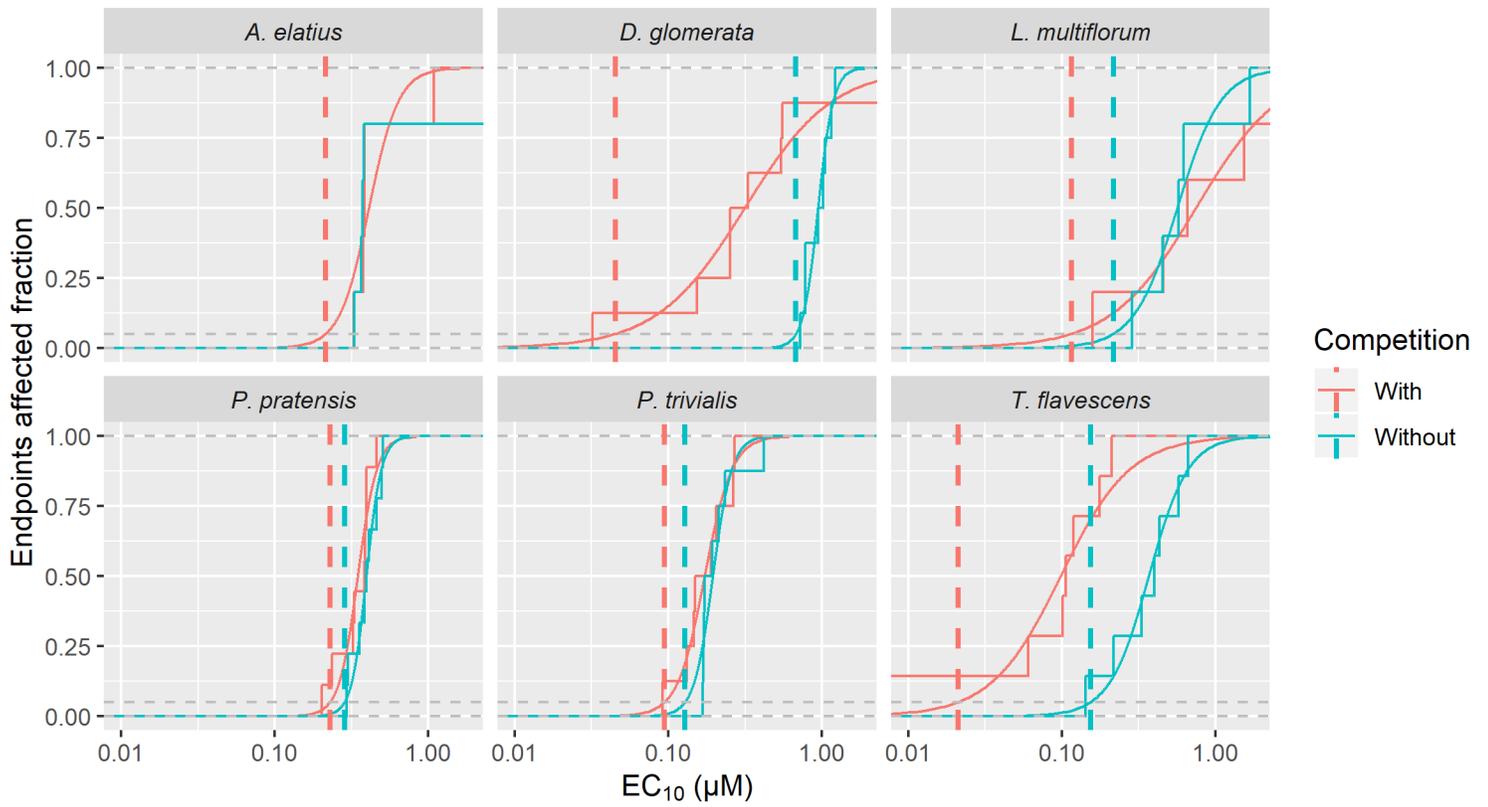
7 Supporting information G

ESD produced for the different species and CECs. The stairs represents the data used to model the ESDs and the curves the ESDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC_5 levels.

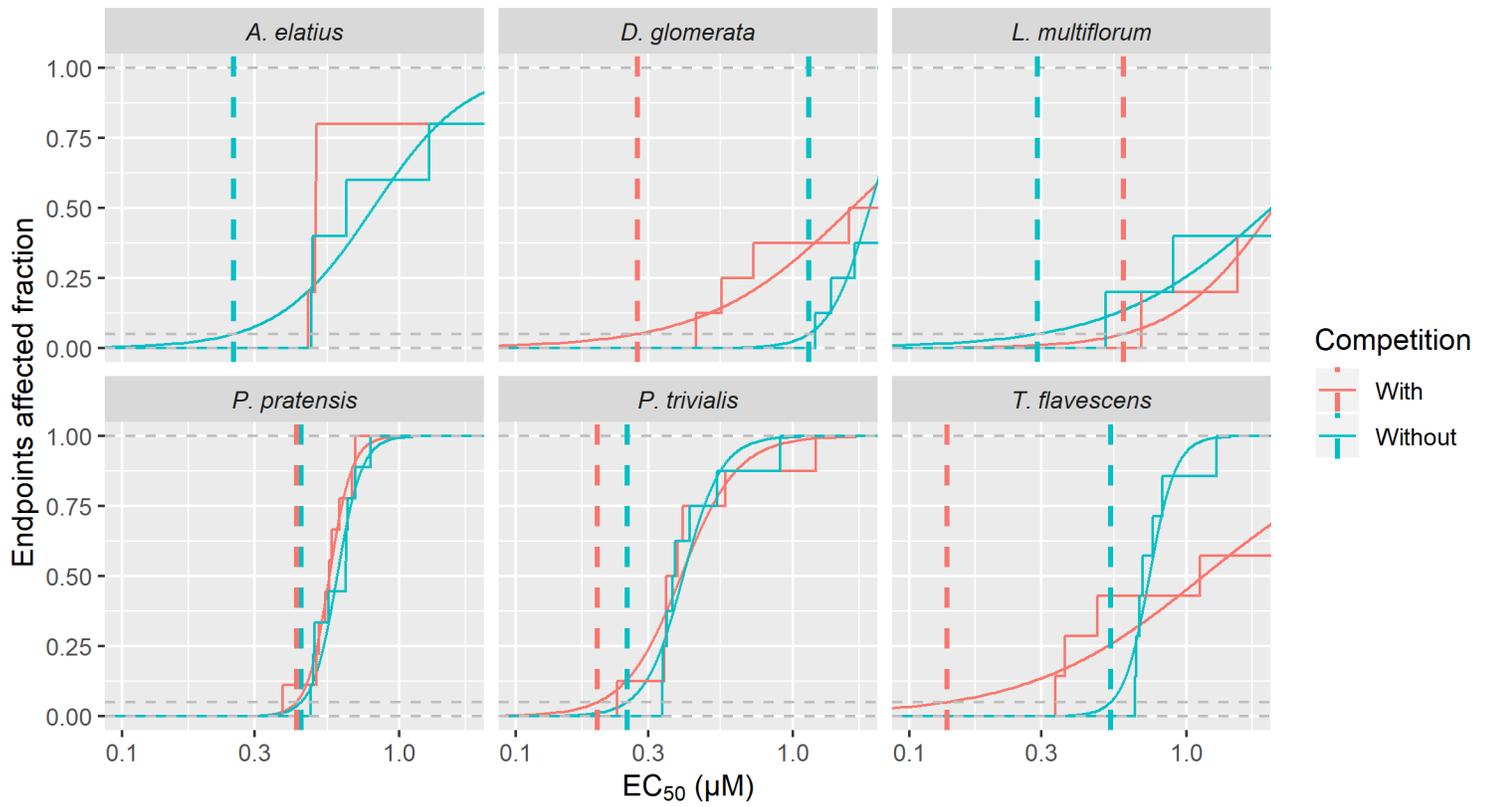
ESD produced for the different species and BMD_{2sd} . The stairs represents the data used to model the ESDs and the curves the ESDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC_5 levels.



ESD produced for the different species and EC_{10} . The stairs represents the data used to model the ESDs and the curves the ESDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC_5 levels.



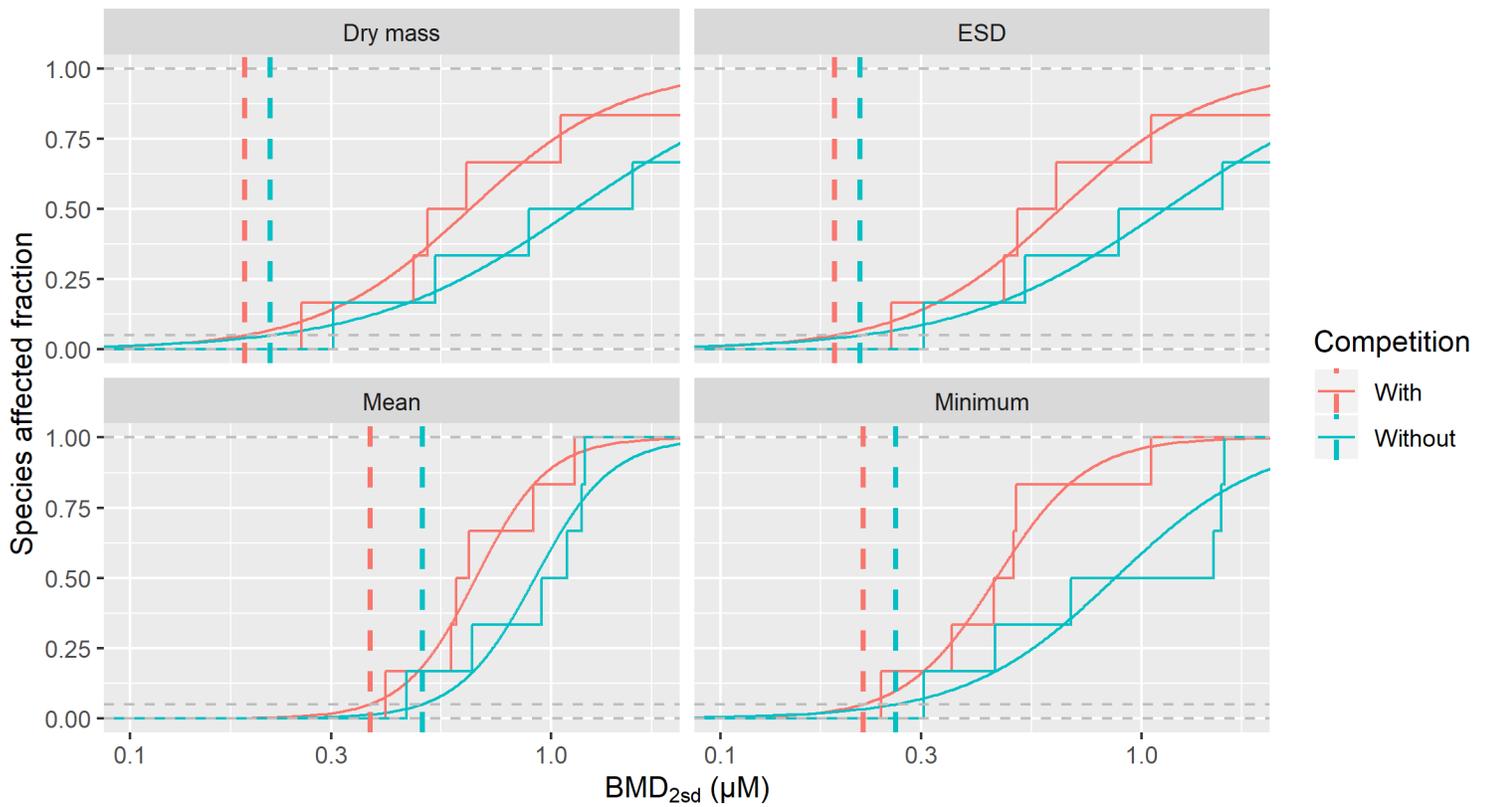
ESD produced for the different species and EC_{50} . The stairs represents the data used to model the ESDs and the curves the ESDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC_5 levels.



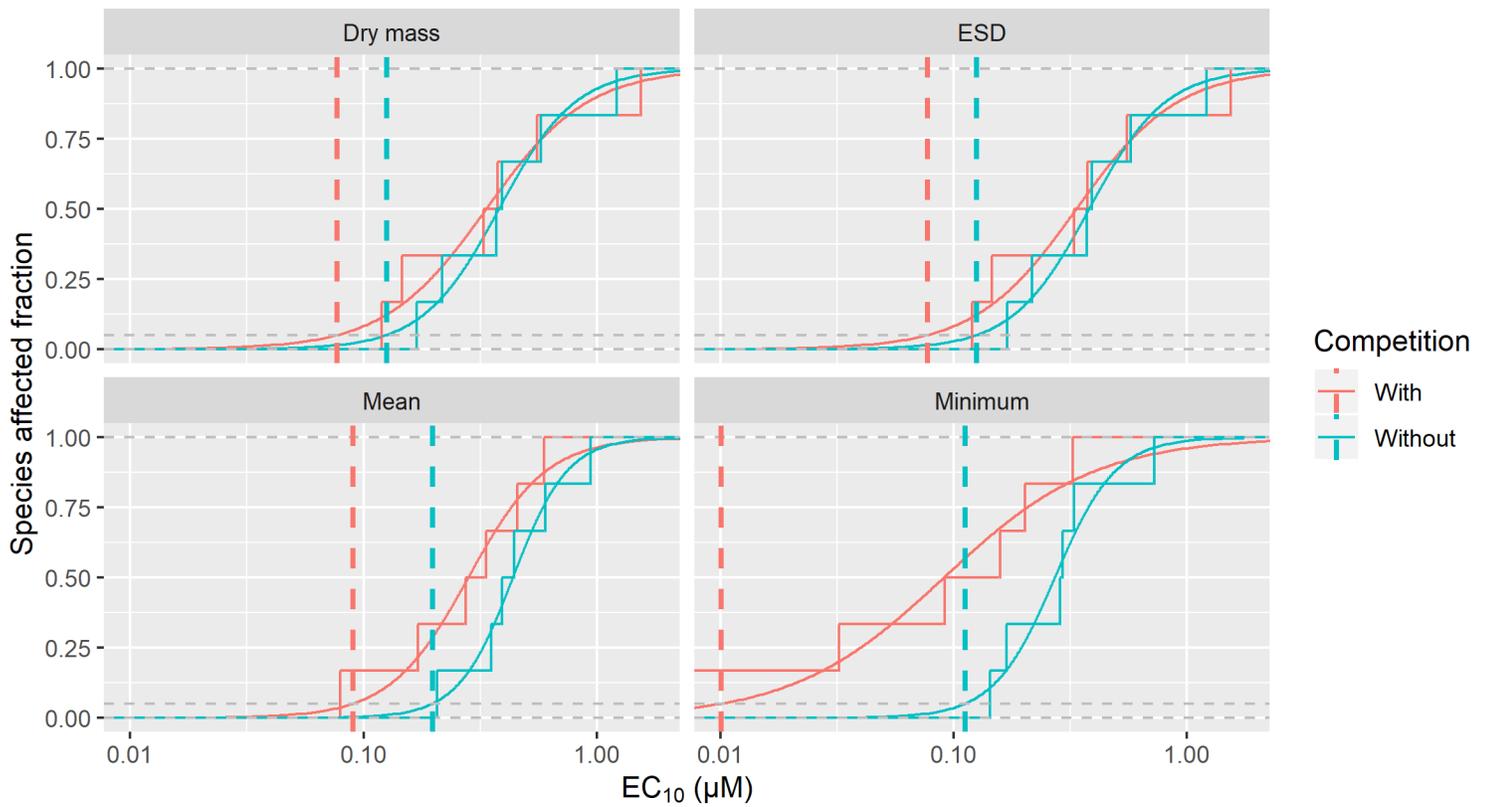
8 Supporting information H

SSD produced for the different CECs. On each figure, A is the SSD produced using the mean value for each species, B is the SSD produced using the minimum value for each species, C is the SSD produced using the total dry mass for each species and D the SSD produced using the 5th percentile from "ESD" of each species. The stairs represents the data used to model the SSDs and the curves the SSDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC₅ levels.

SSD produced for BMD_{2sd} . On each figure, A is the SSD produced using the mean value for each species, B is the SSD produced using the minimum value for each species, C is the SSD produced using the total dry mass for each species and D the SSD produced using the 5th percentile from "ESD" of each species. The stairs represents the data used to model the SSDs and the curves the SSDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC_5 levels.



SSD produced for EC₁₀. On each figure, A is the SSD produced using the mean value for each species, B is the SSD produced using the minimum value for each species, C is the SSD produced using the total dry mass for each species and D the SSD produced using the 5th percentile from "ESD" of each species. The stairs represents the data used to model the SSDs and the curves the SSDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC₅ levels.



SSD produced for EC_{50} . On each figure, A is the SSD produced using the mean value for each species, B is the SSD produced using the minimum value for each species, C is the SSD produced using the total dry mass for each species and D the SSD produced using the 5th percentile from "ESD" of each species. The stairs represents the data used to model the SSDs and the curves the SSDs themselves. In blue are the data without competition and in red the data with competition. The vertical dashed lines represent the HC_5 levels.

