

Supplementary materials

P. Saska, H. Foffová, Z. Martinková, A. Honěk: Changes in morphological traits and viability of herbaceous seeds due to burial in soil

Appendix S1

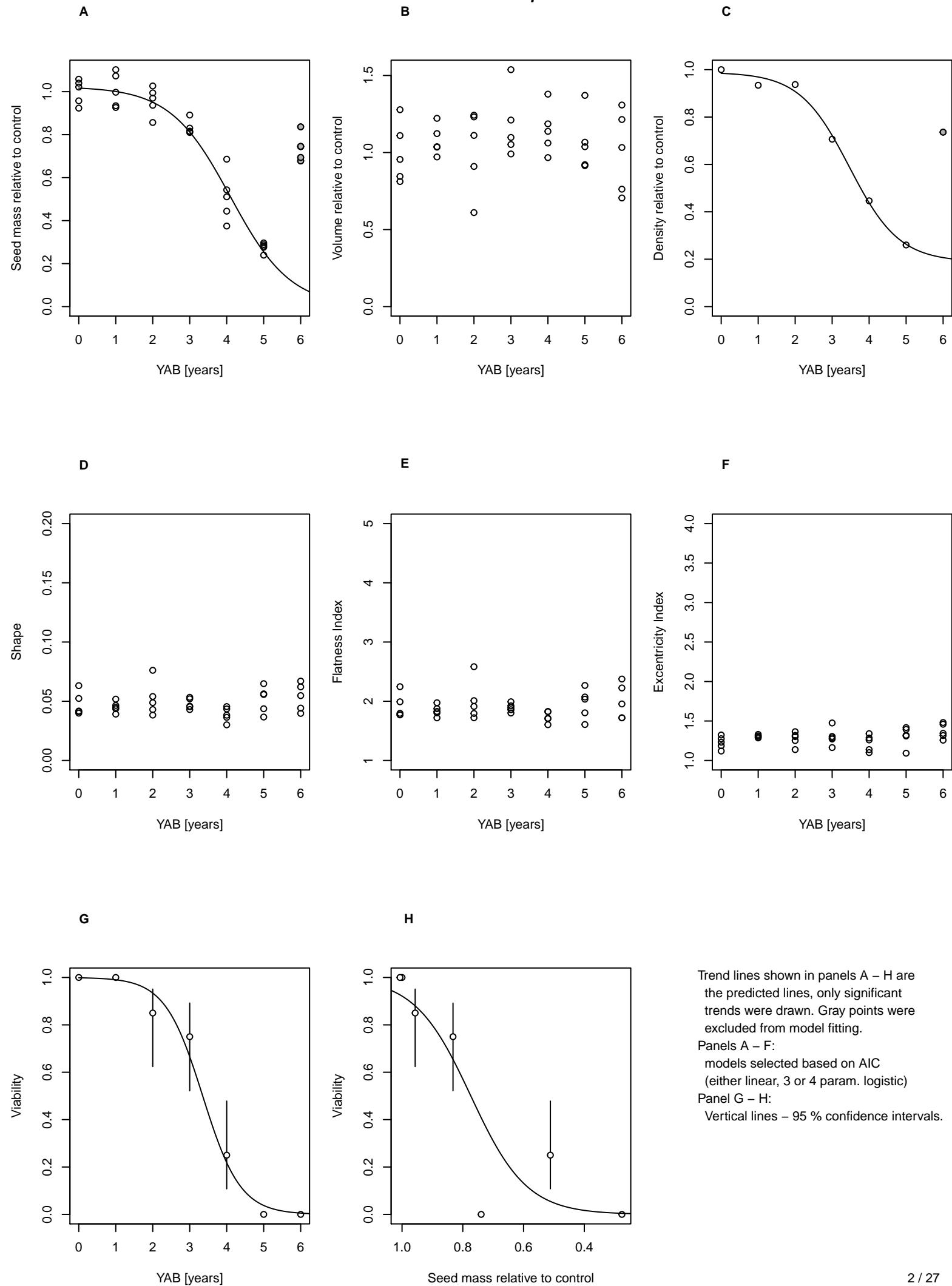
For each species, eight panels denoted A – H are displayed:

- A – Change in relative seed mass over years after burial (YAB);
- B – Change in relative seed volume over YAB;
- C – Change in relative seed density over YAB;
- D – Change in seed shape over YAB;
- E – Change in flatness index over YAB;
- F – Change in eccentricity index over YAB;
- G – Change in seed viability based on crush test over YAB;
- H – Change in seed viability with relative seed mass.

Content:

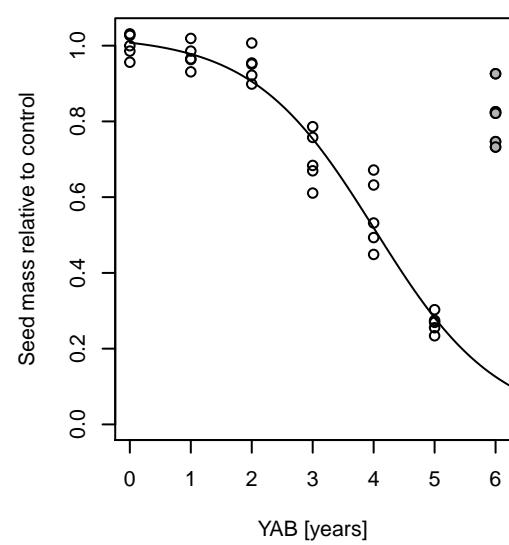
<i>Amaranthus powellii</i> S. Watson	2
<i>Amaranthus retroflexus</i> L.	3
<i>Atriplex sagittata</i> Borkh.	4
<i>Campanula trachelium</i> L.	5
<i>Capsella bursa-pastoris</i> (L.) Med.	6
<i>Chenopodium album</i> agg.	7
<i>Chenopodium glaucum</i> L.	8
<i>Chenopodium polyspermum</i> L.	9
<i>Crepis biennis</i> L.	10
<i>Geum urbanum</i> L.	11
<i>Hyoscyamus niger</i> L.	12
<i>Hypericum perforatum</i> L.	13
<i>Lavandula angustifolia</i> Mill.	14
<i>Leonurus cardiaca</i> L.	15
<i>Lycopus europaeus</i> L.	16
<i>Persicaria lapathifolia</i> (L.) Delarbre	17
<i>Plantago lanceolata</i> L.	18
<i>Plantago major</i> L.	19
<i>Plantago media</i> L.	20
<i>Portulaca oleracea</i> L.	21
<i>Silene noctiflora</i> L.	22
<i>Silene vulgaris</i> (Moench) Garcke	23
<i>Thlaspi arvense</i> L.	24
<i>Tripleurospermum inodorum</i> (L.) Schultz-Bip.	25
<i>Urtica dioica</i> L.	26
<i>Urtica urens</i> L.	27

Amaranthus powellii

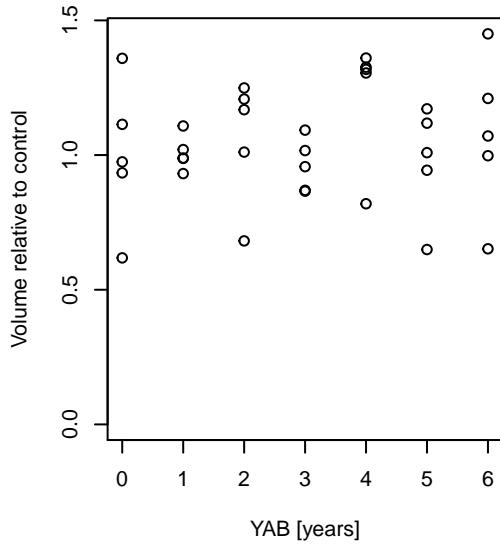


Amaranthus retroflexus

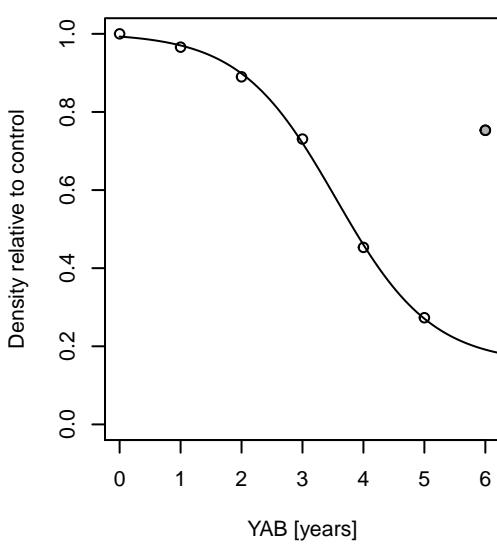
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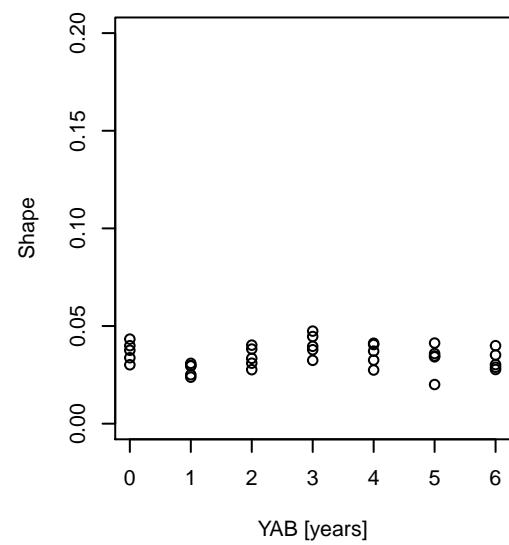
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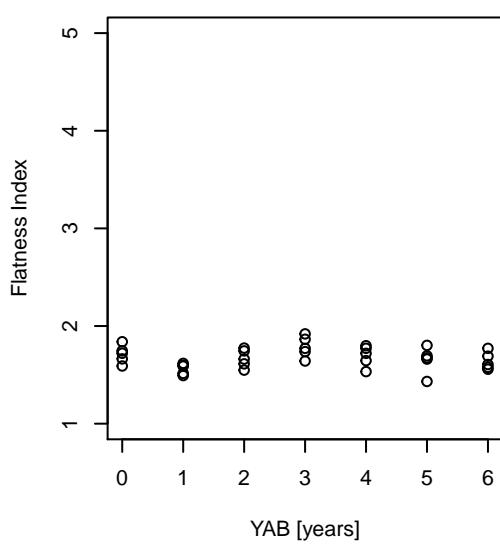
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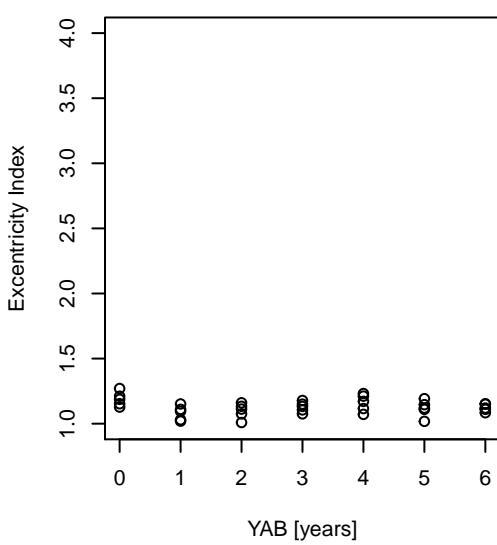
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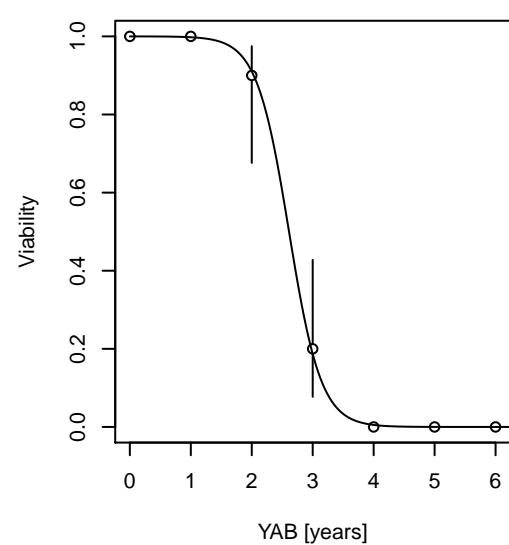
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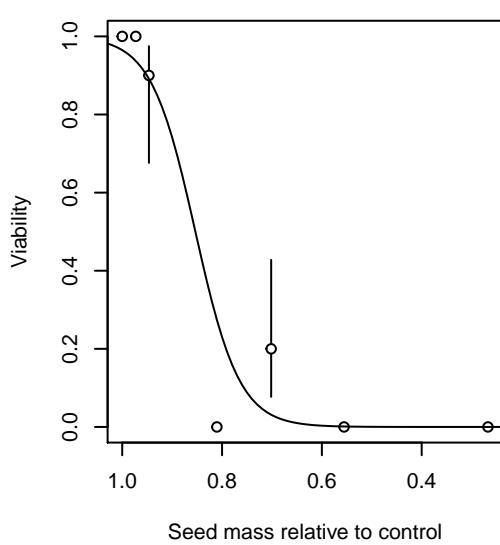
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

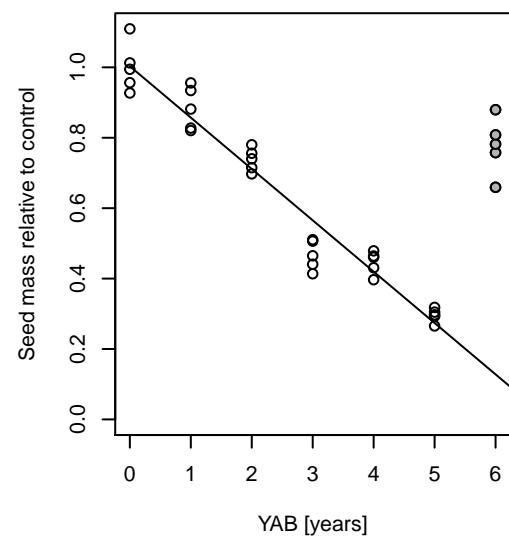
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

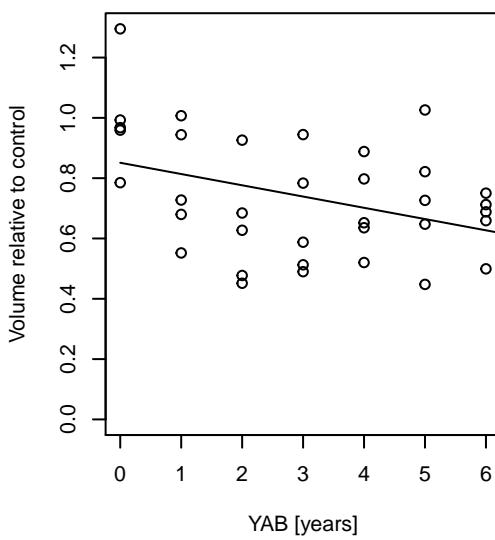
Vertical lines – 95 % confidence intervals.

Atriplex sagittata

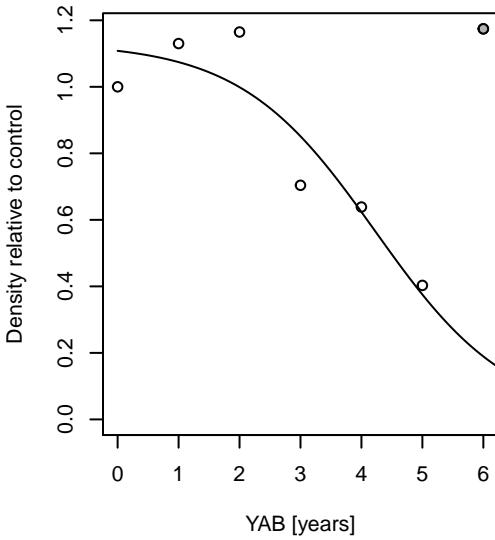
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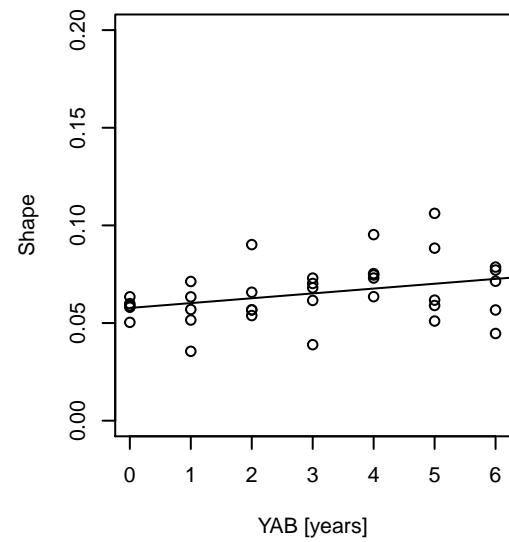
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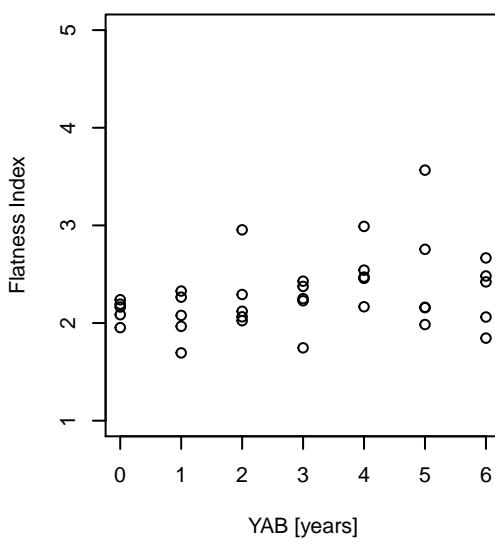
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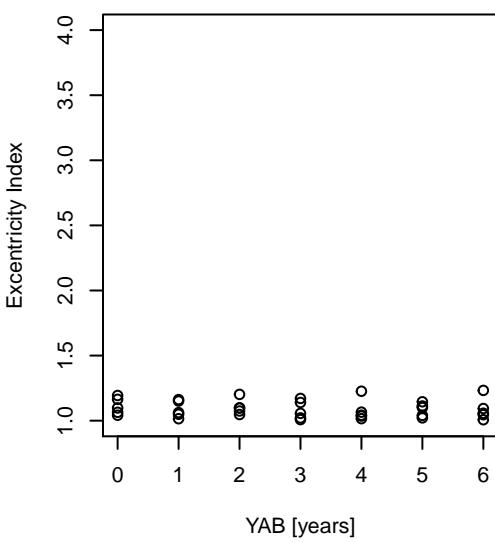
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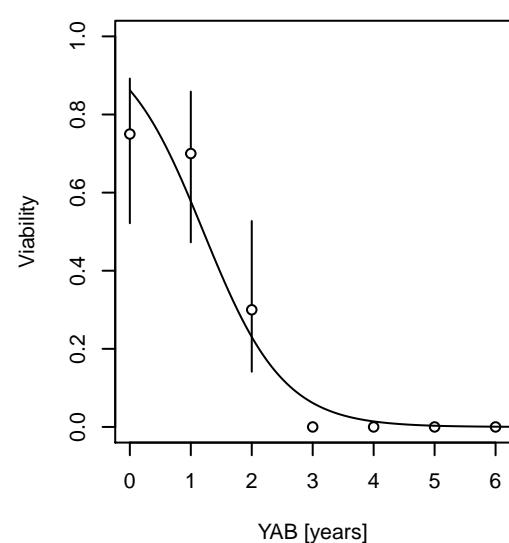
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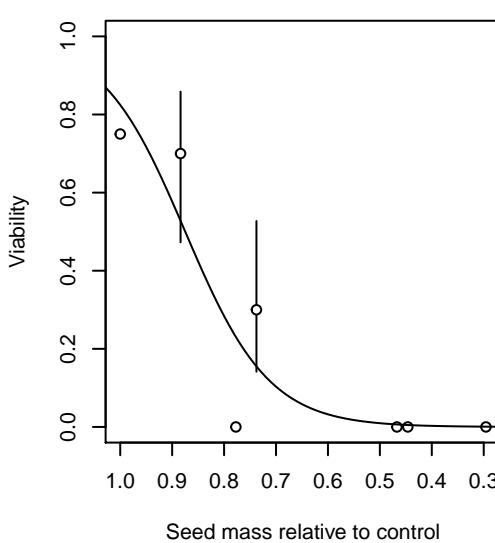
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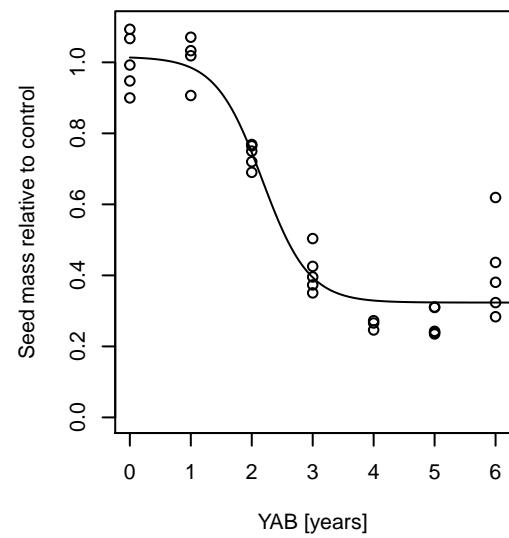
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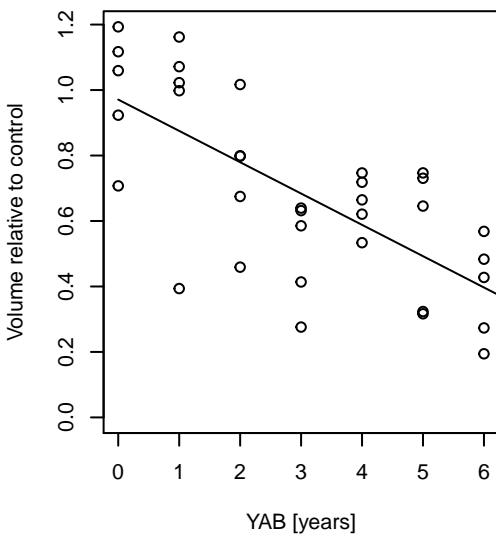
Vertical lines – 95 % confidence intervals.

Campanula trachelium

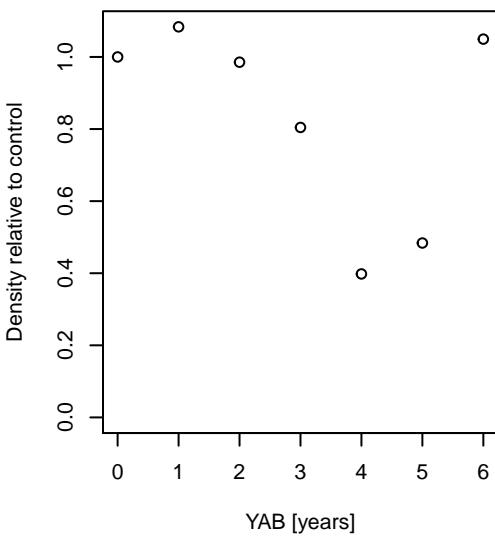
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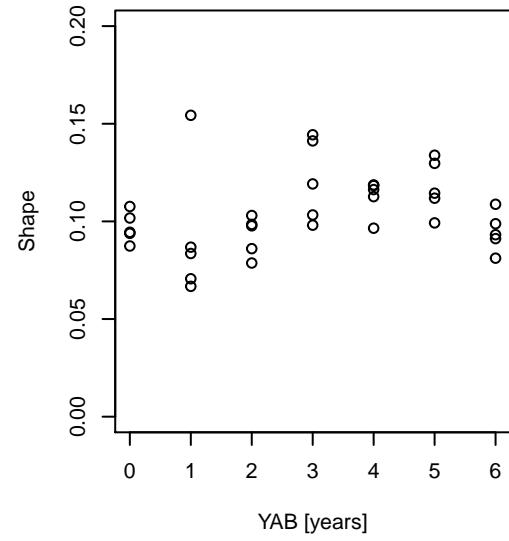
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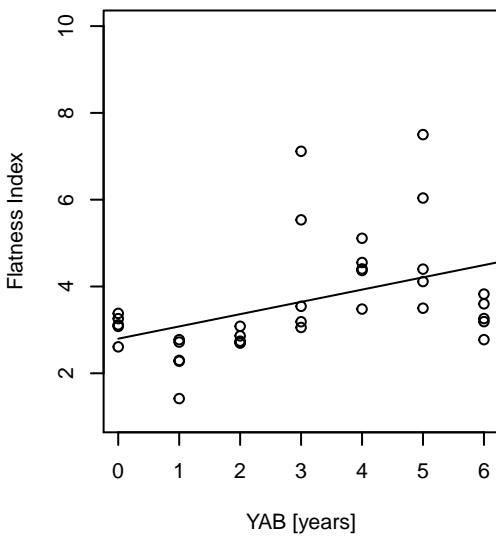
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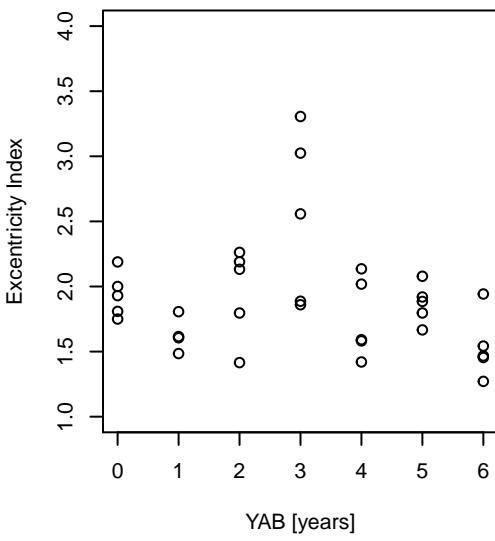
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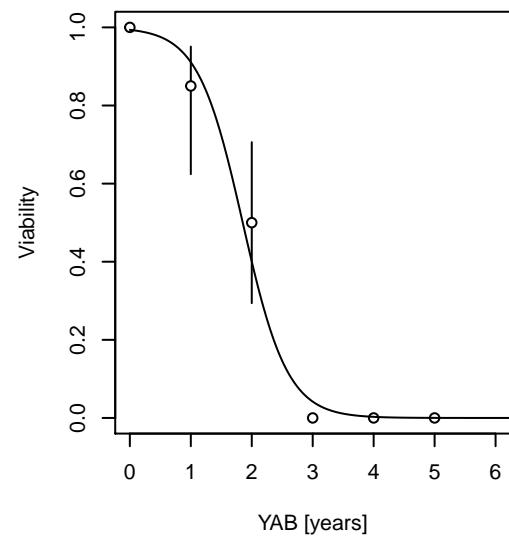
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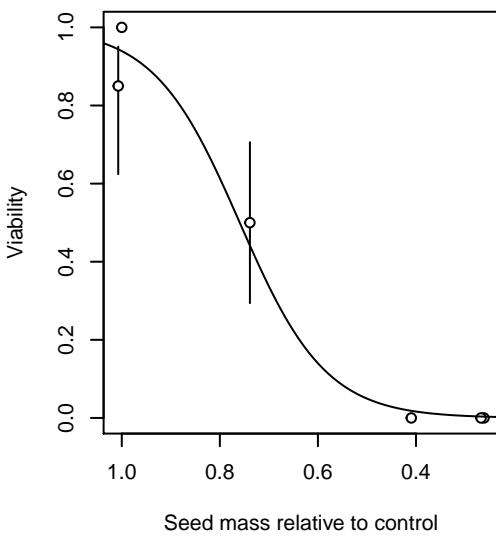
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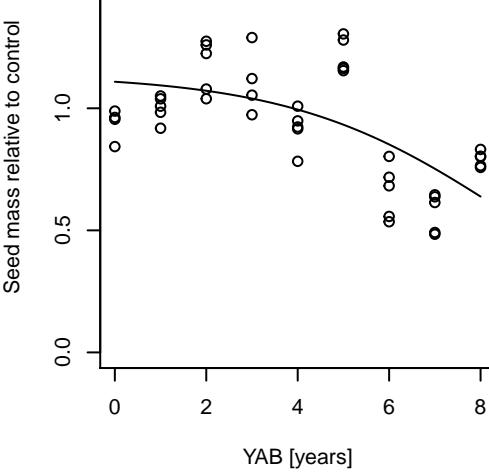
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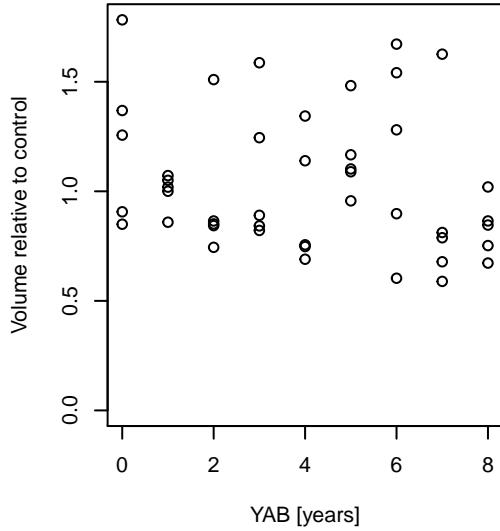
Panel G – H:
Vertical lines – 95 % confidence intervals.

Capsella bursa-pastoris

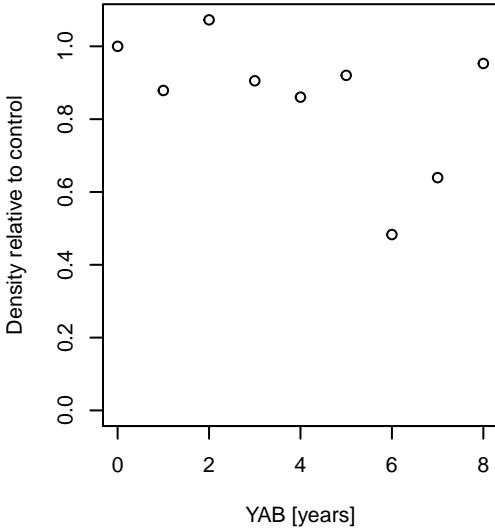
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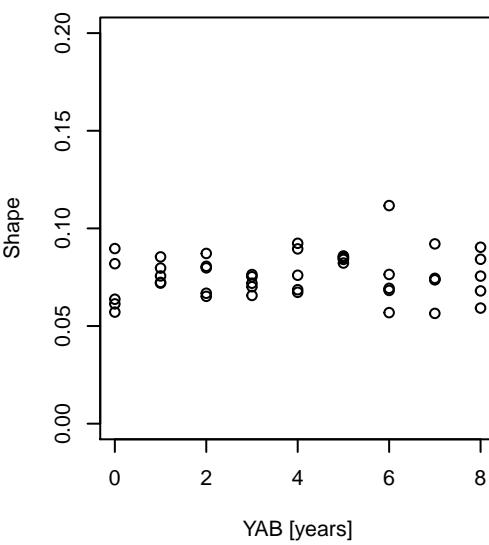
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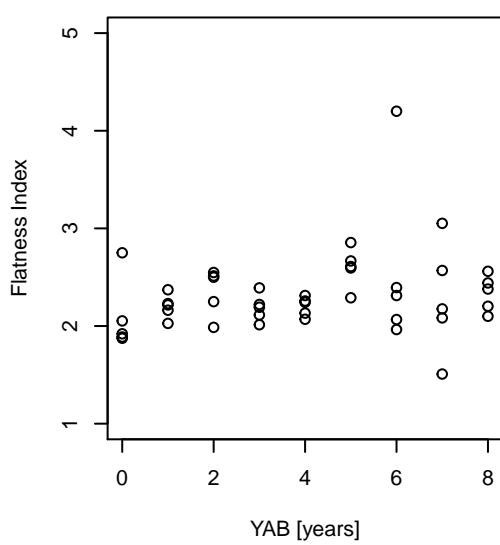
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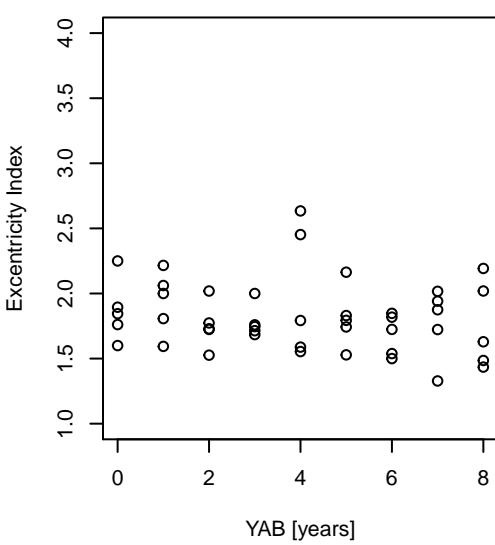
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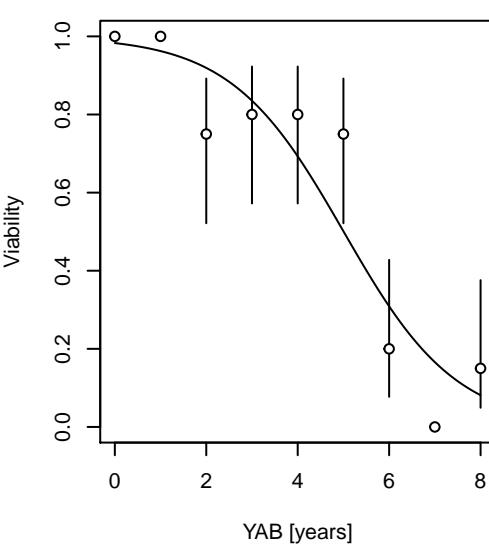
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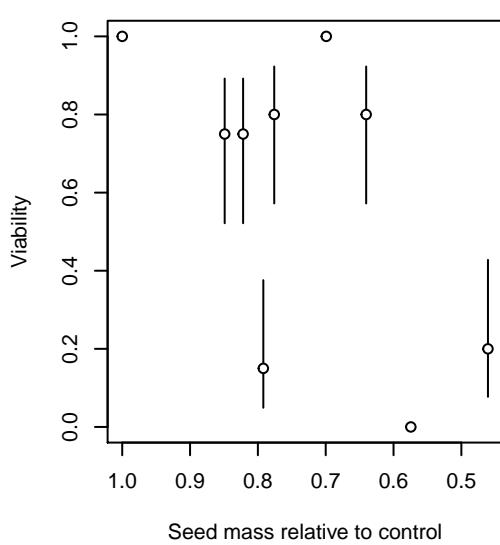
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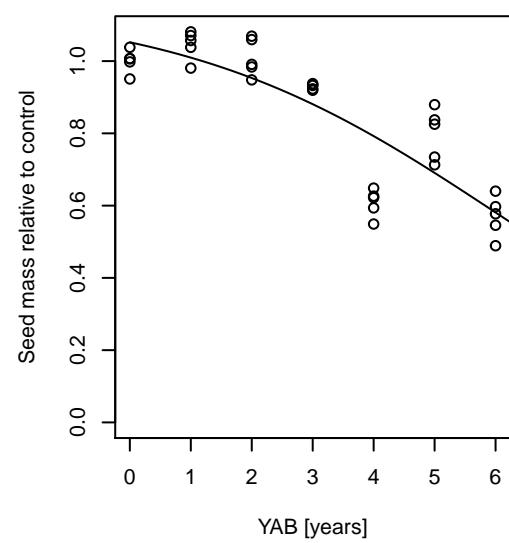
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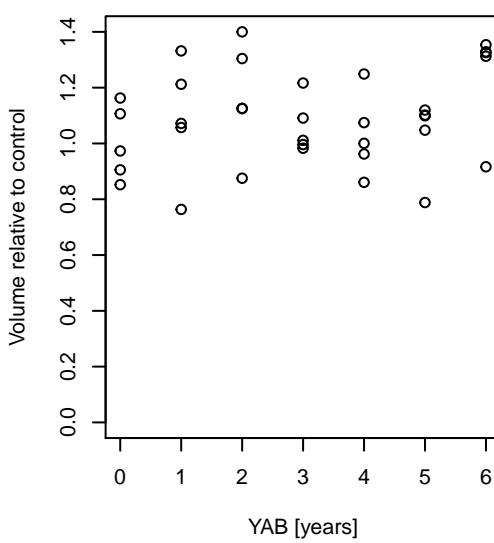
Panel G – H:
Vertical lines – 95 % confidence intervals.

Chenopodium album

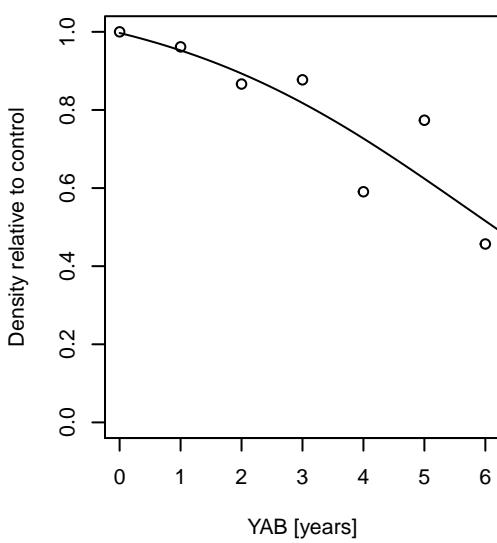
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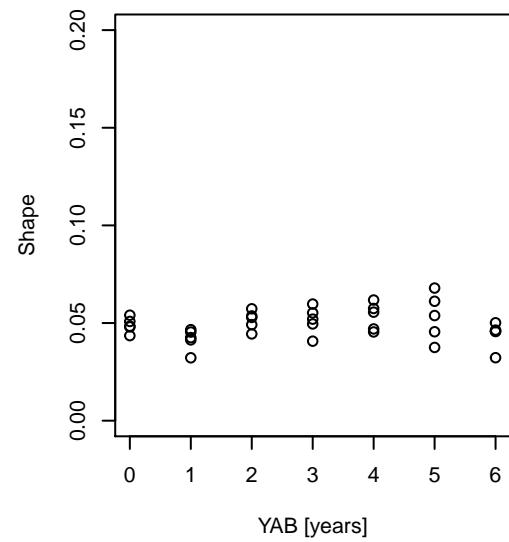
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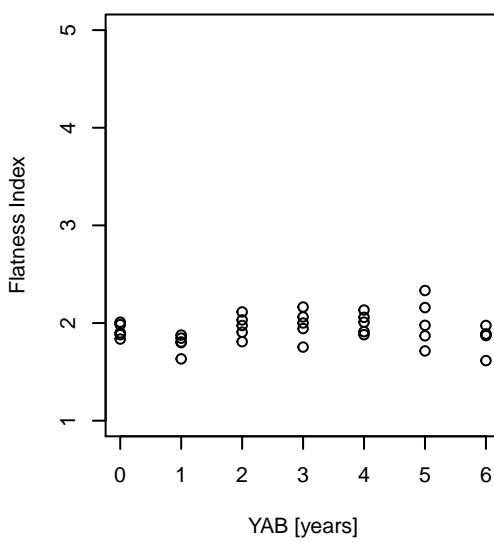
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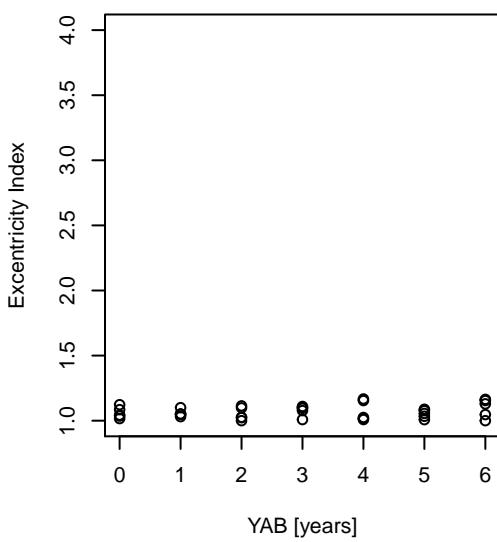
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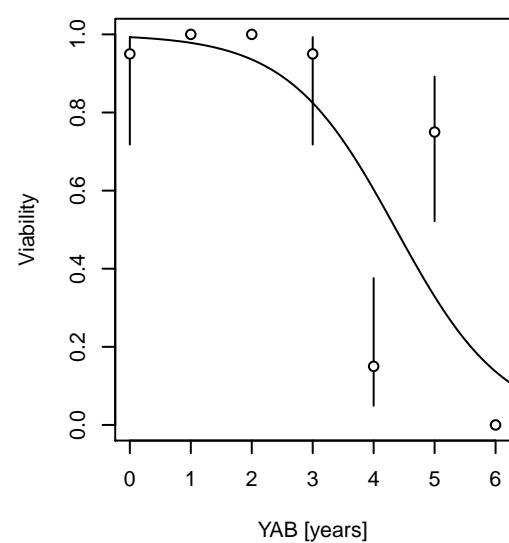
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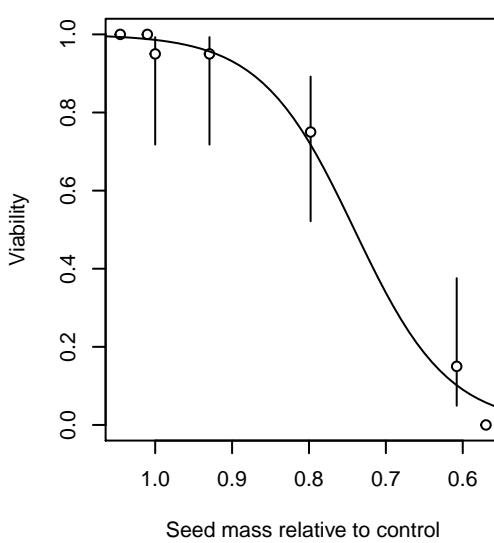
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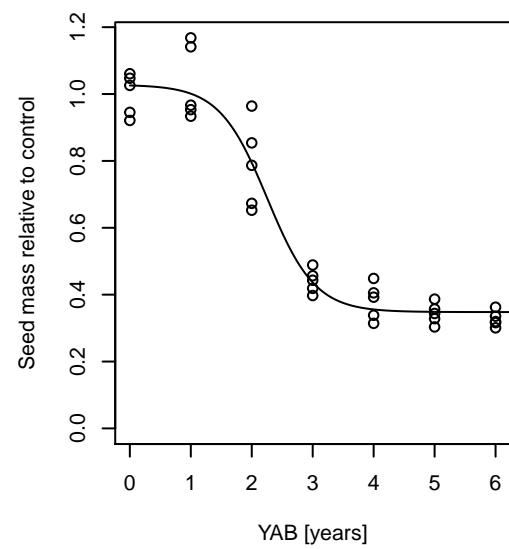
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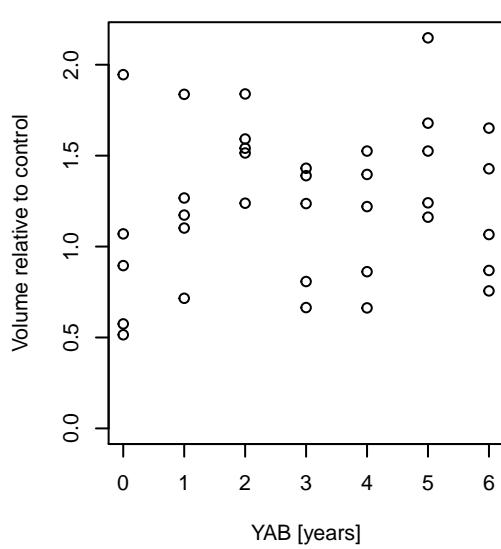
Vertical lines – 95 % confidence intervals.

Chenopodium glaucum

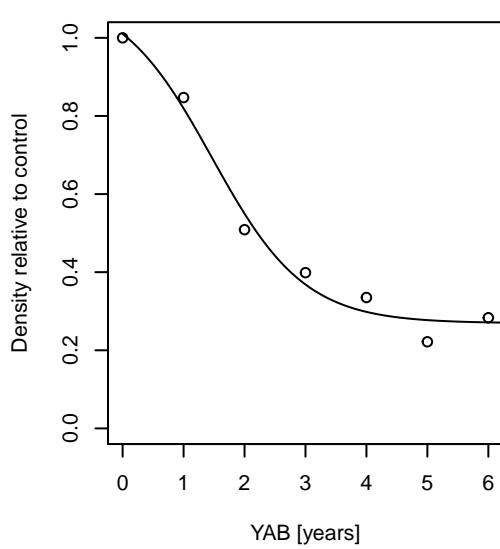
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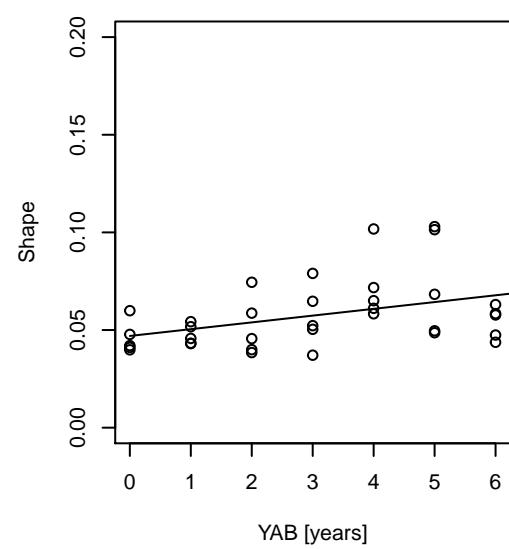
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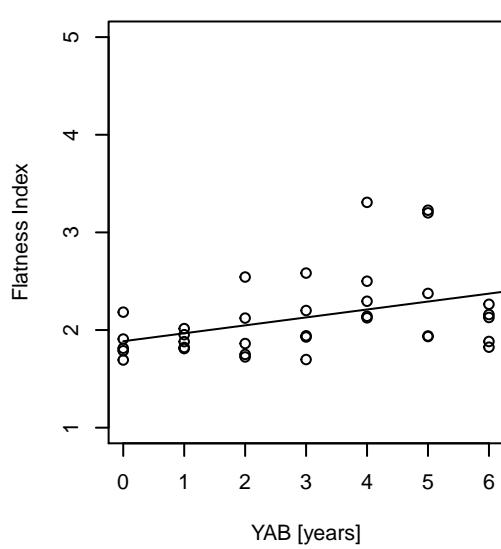
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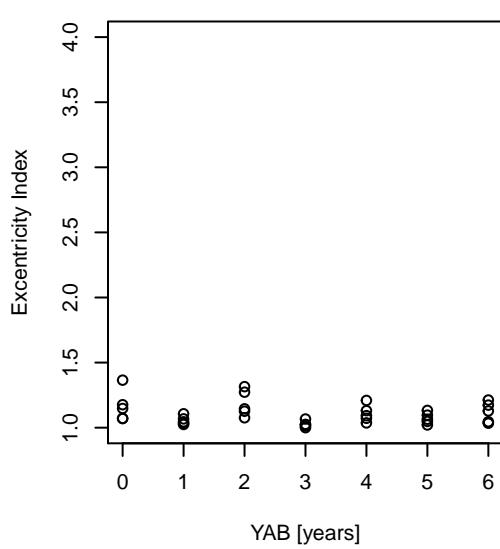
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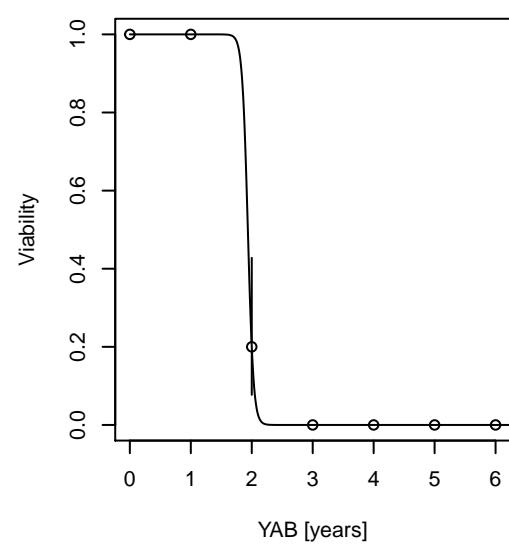
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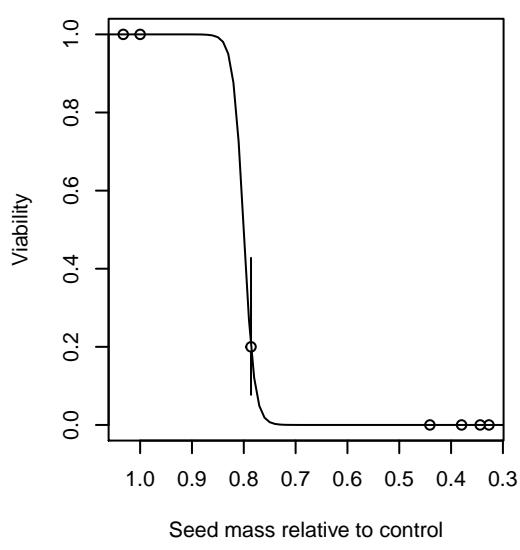
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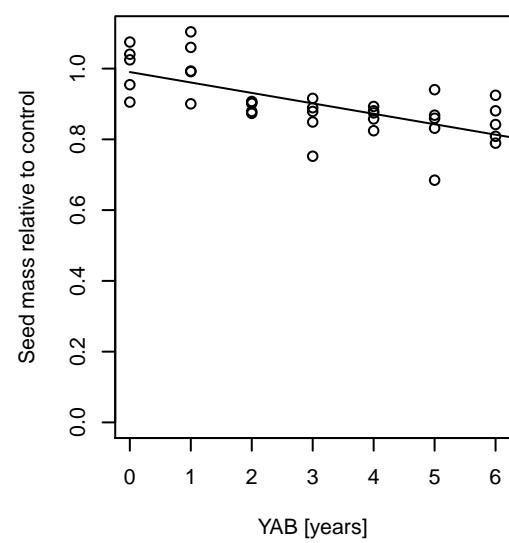
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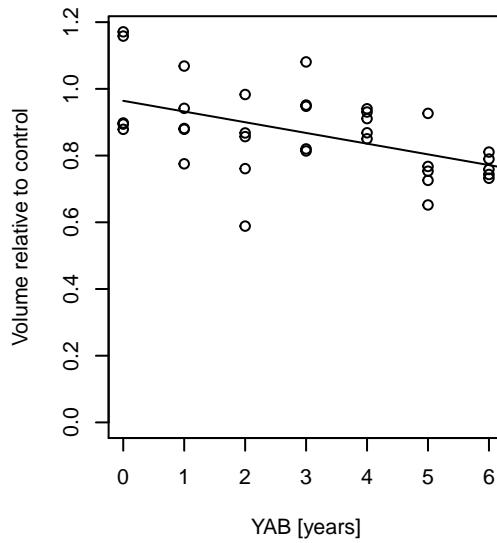
Panel G – H:
Vertical lines – 95 % confidence intervals.

Chenopodium polyspermum

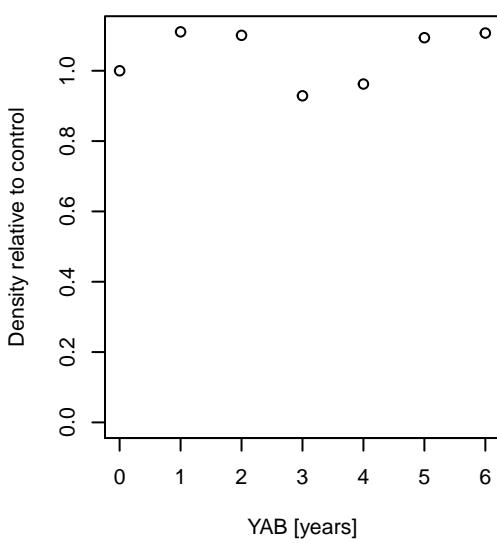
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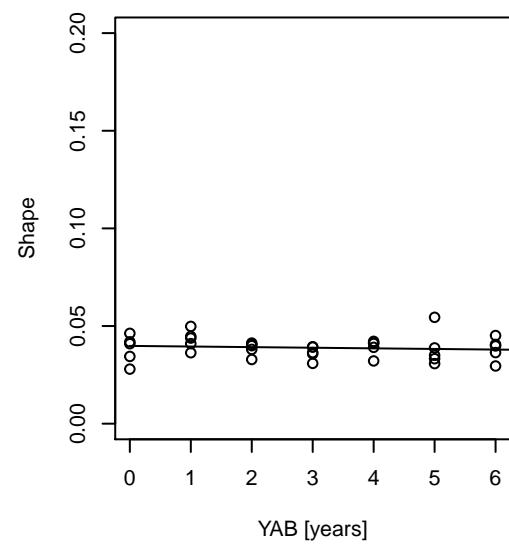
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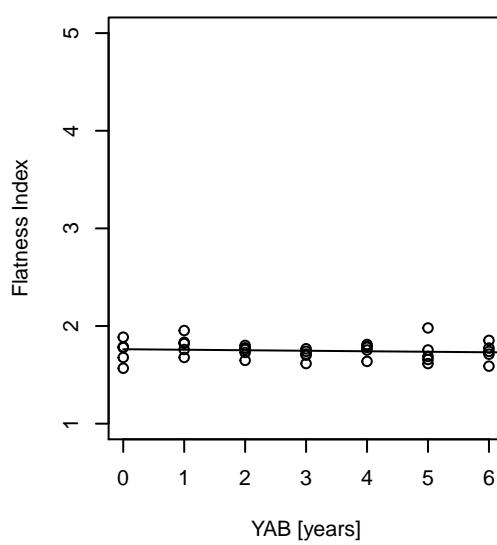
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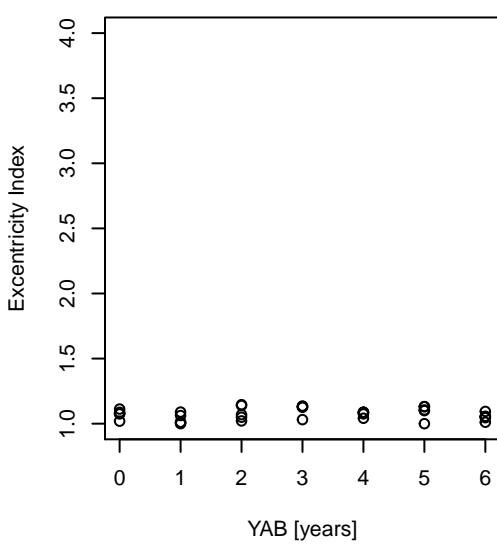
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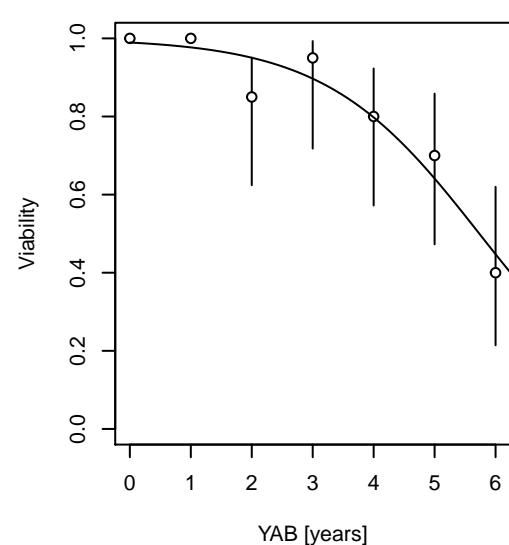
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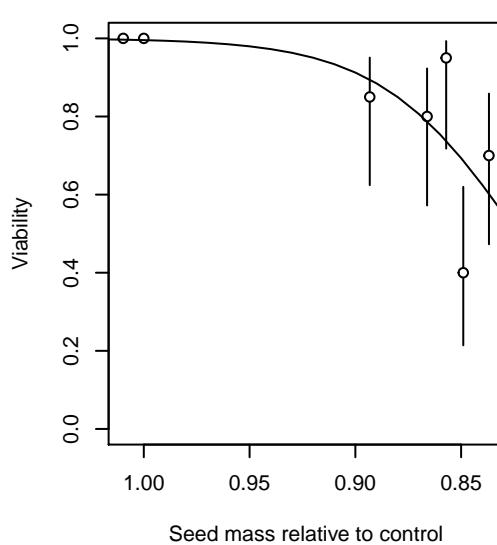
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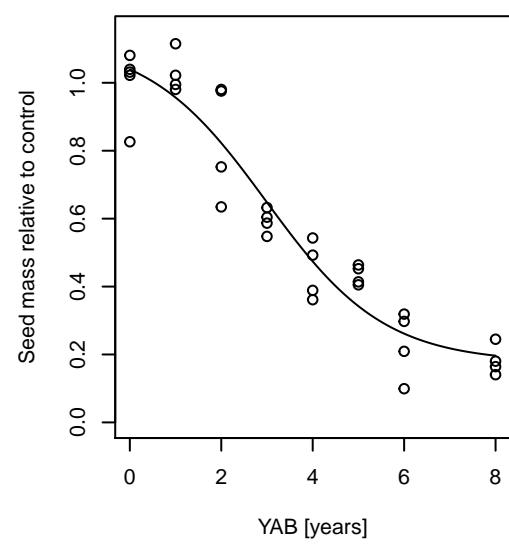
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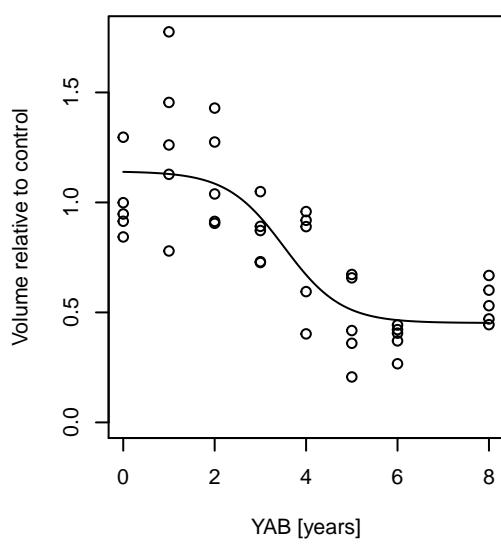
Panel G – H:
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Crepis biennis

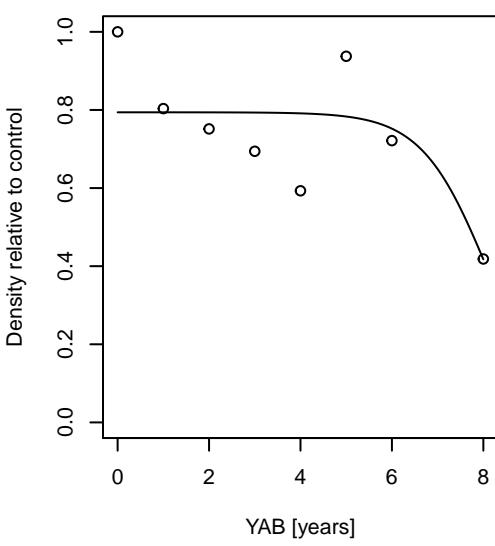
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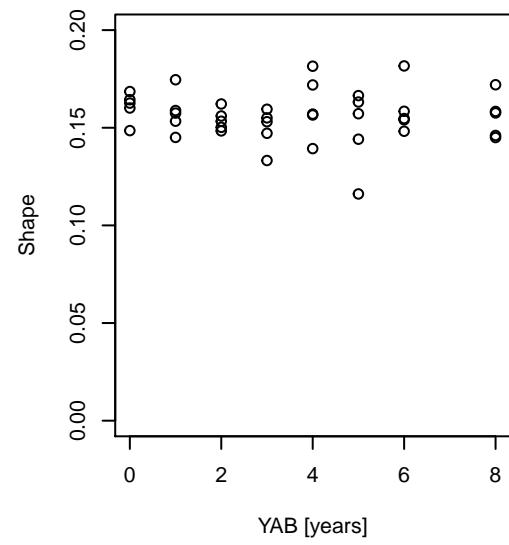
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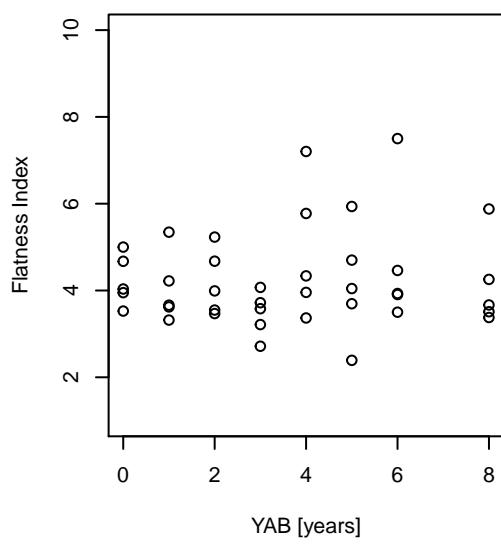
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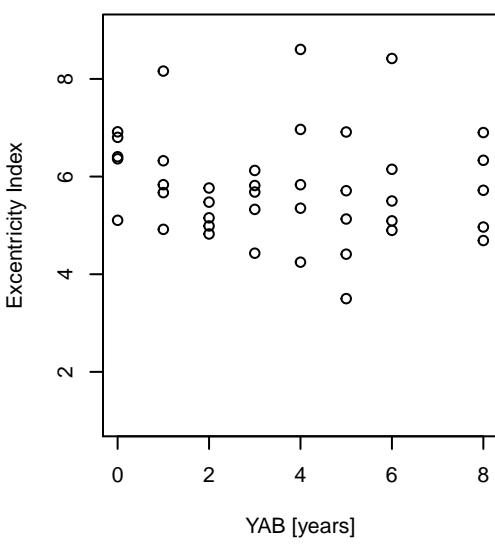
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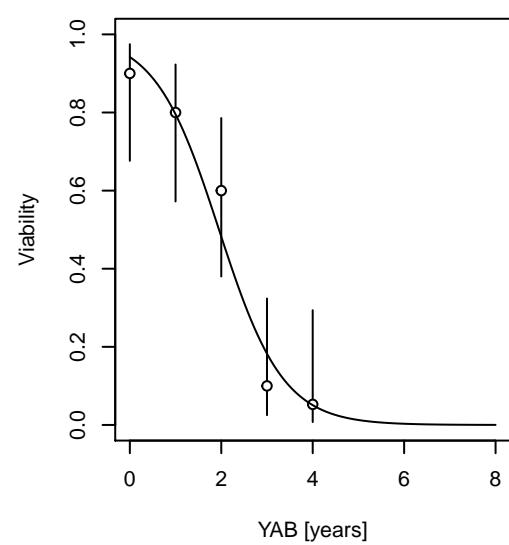
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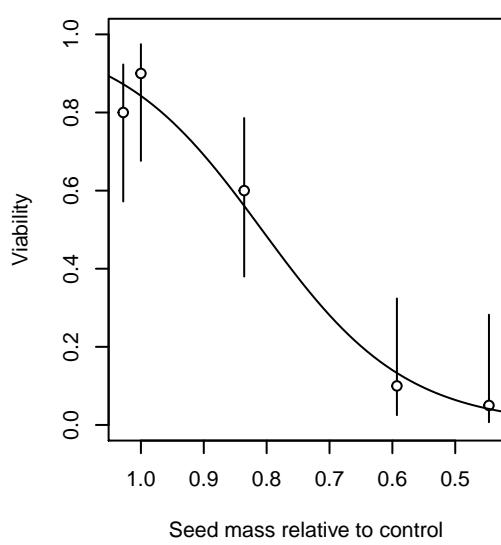
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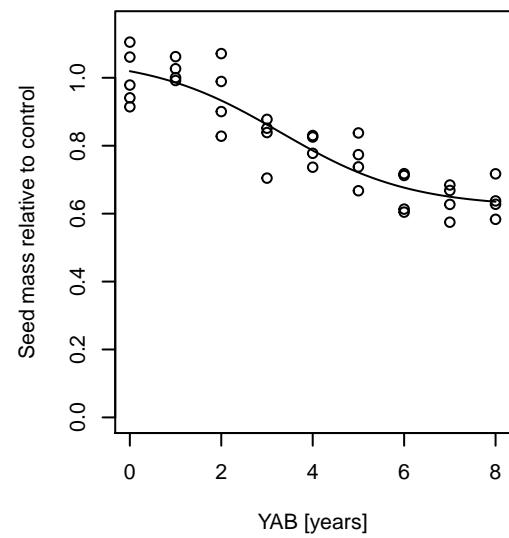
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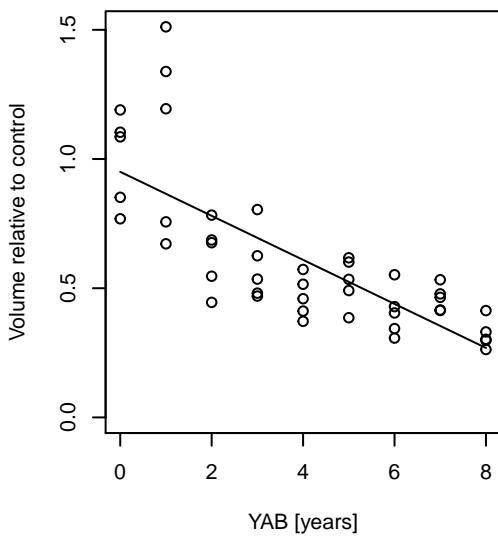
Vertical lines – 95 % confidence intervals.

Geum urbanum

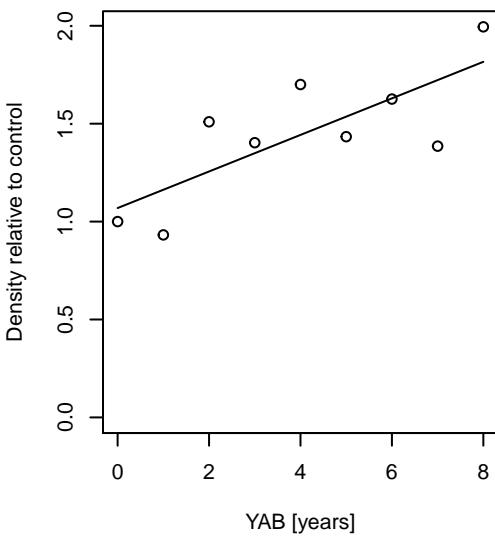
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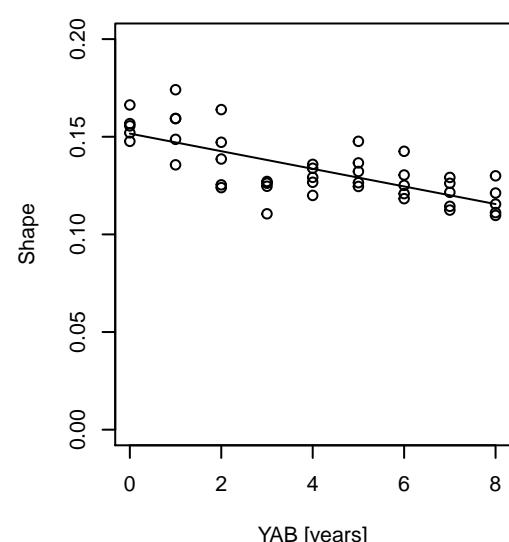
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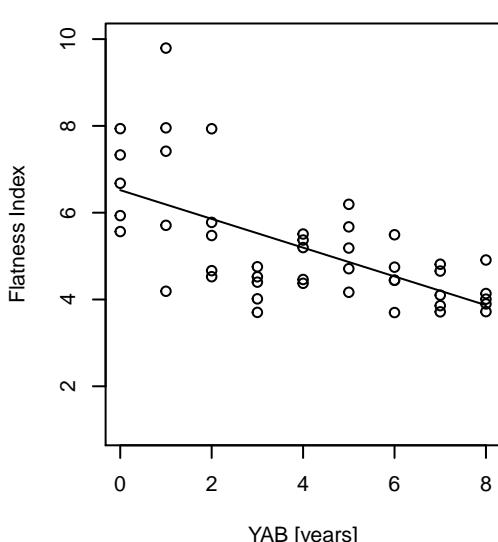
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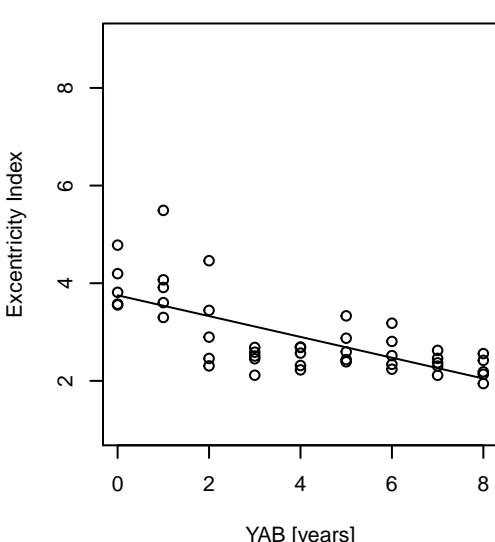
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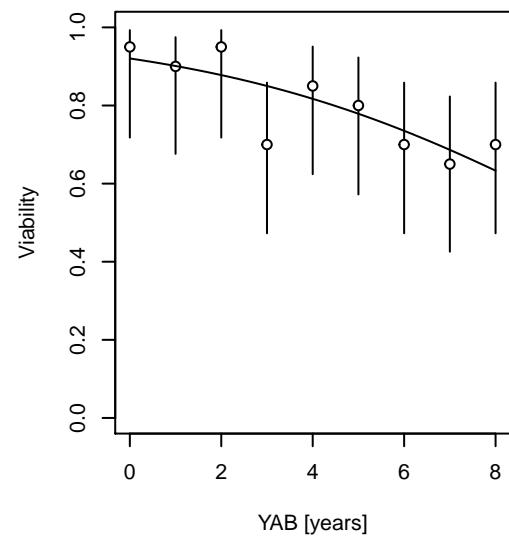
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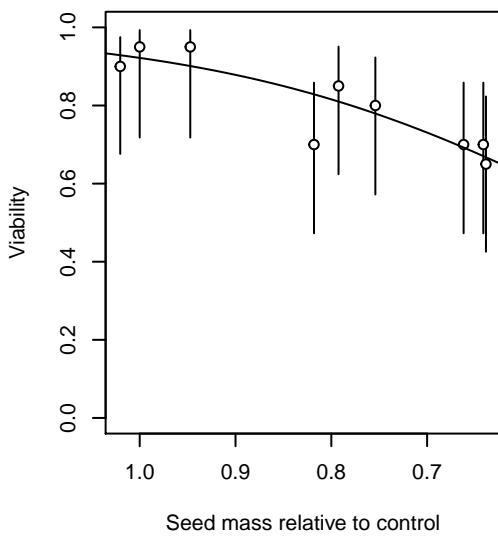
F



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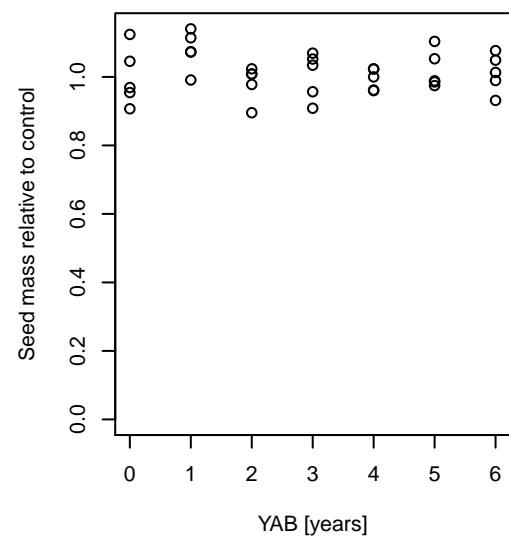
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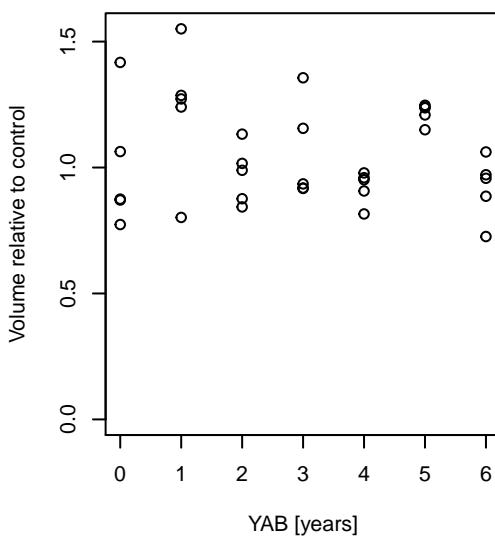
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Hyoscyamus niger

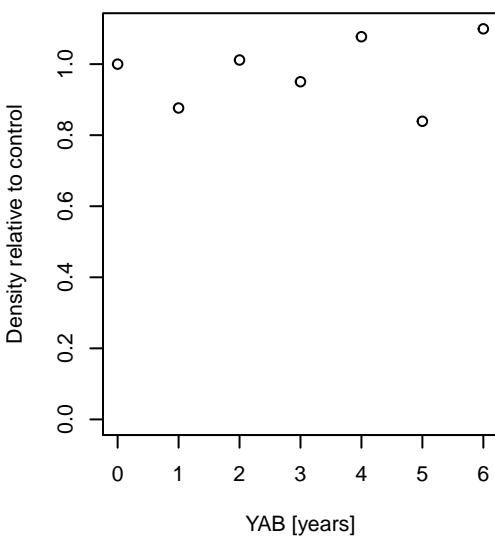
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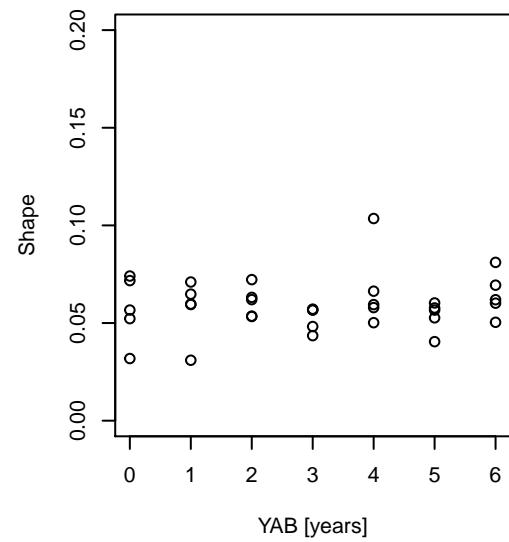
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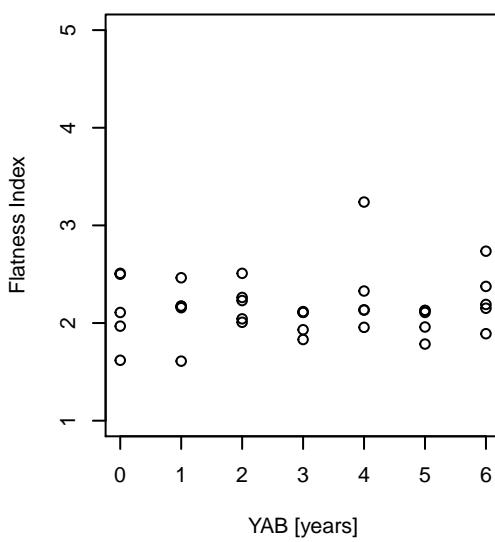
C



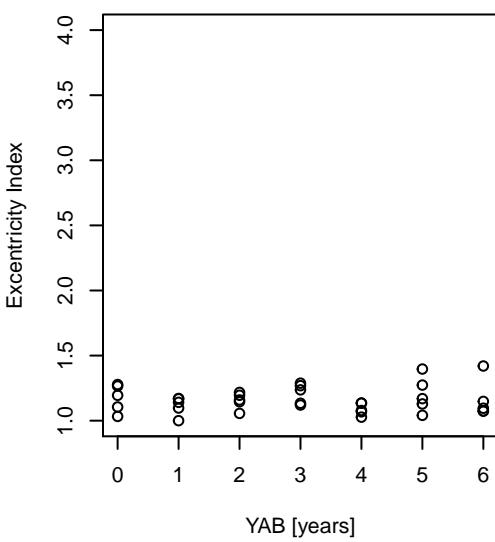
D



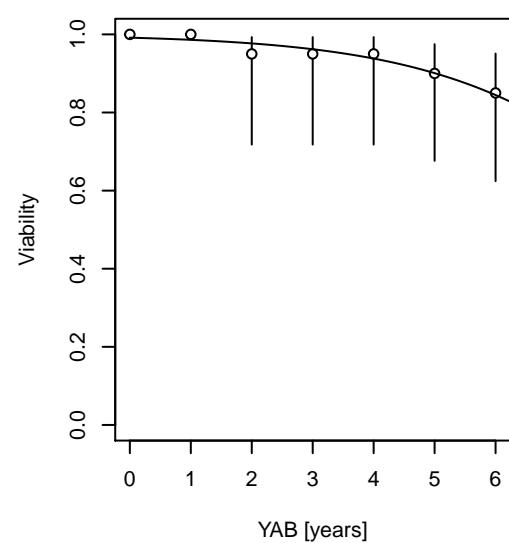
E



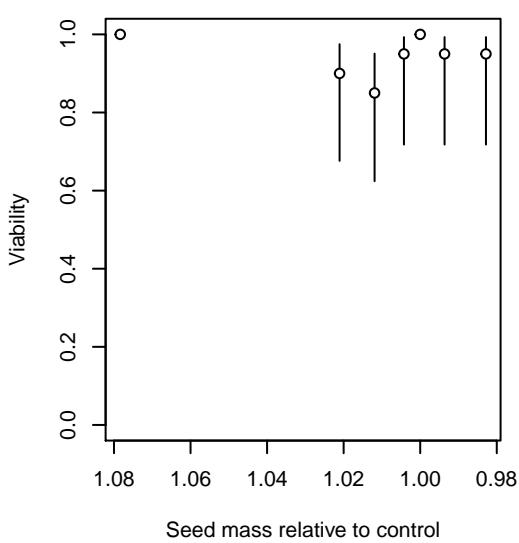
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

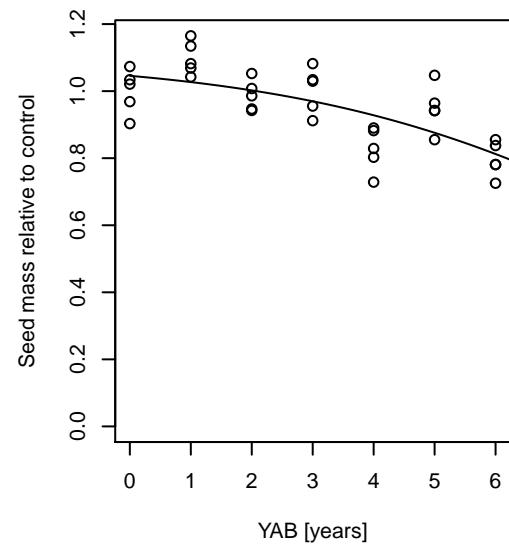
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

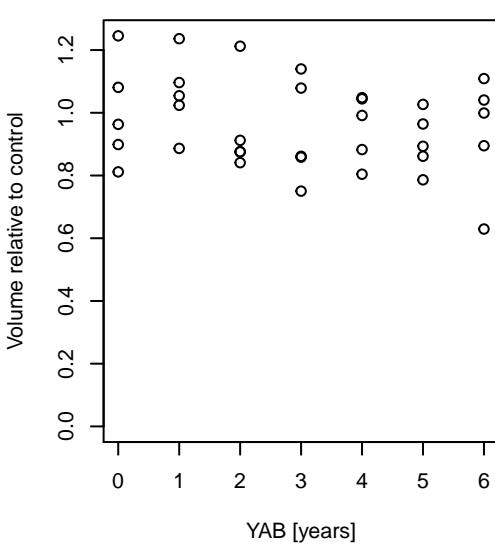
Vertical lines – 95 % confidence intervals.

Hypericum perforatum

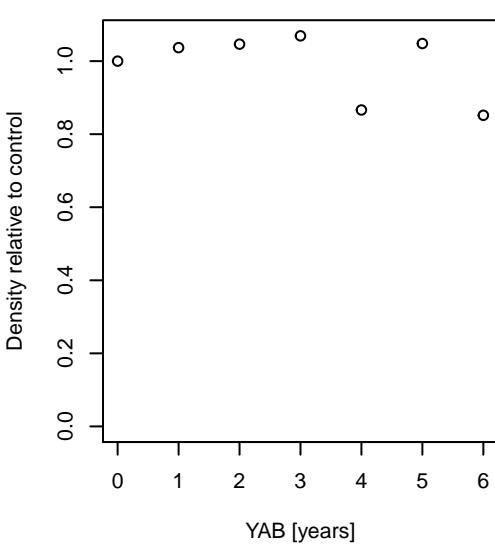
A



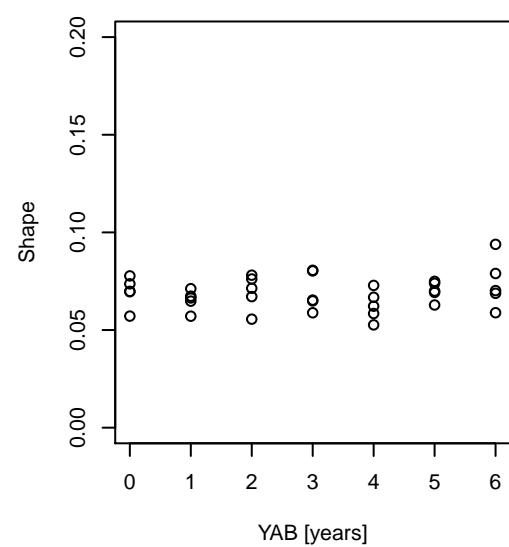
B



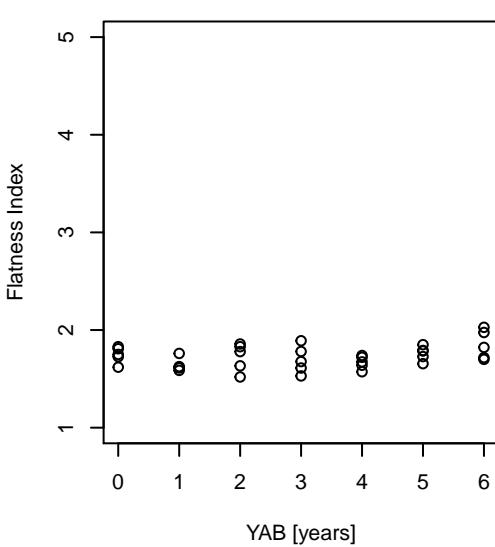
C



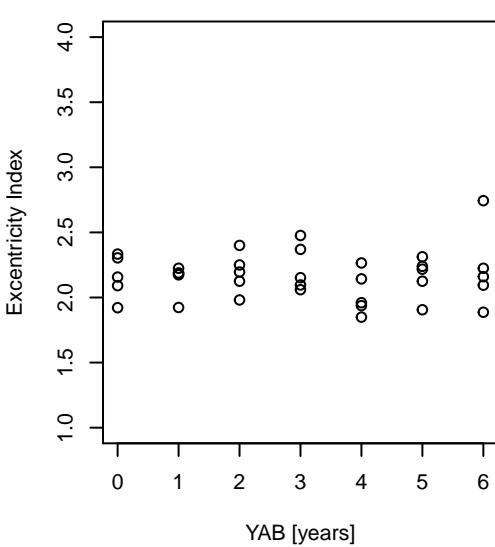
D



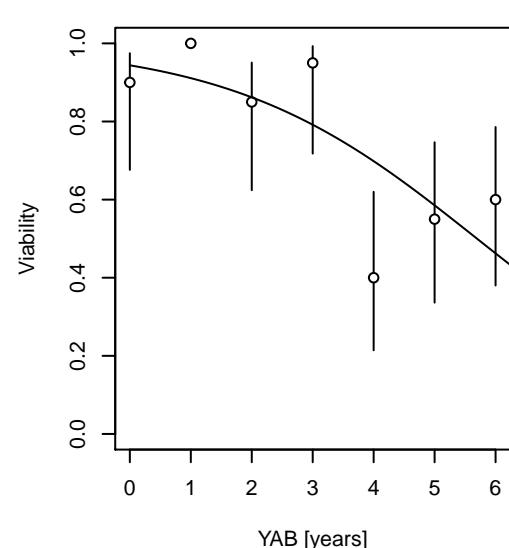
E



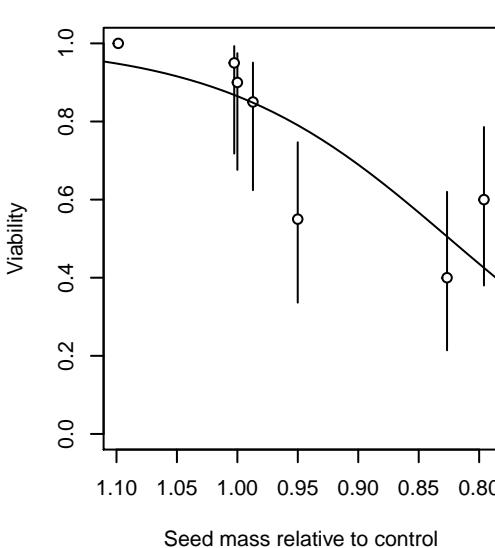
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

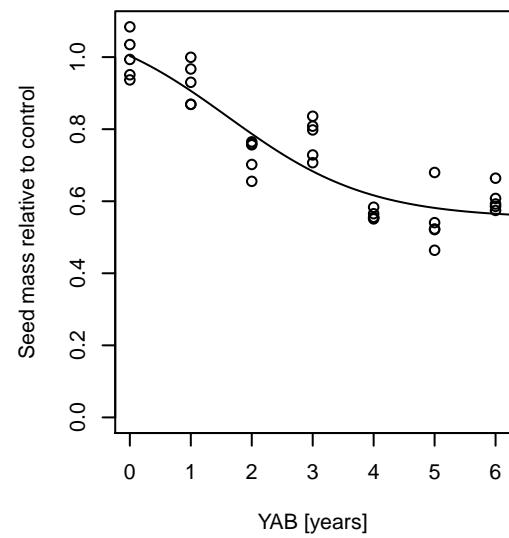
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

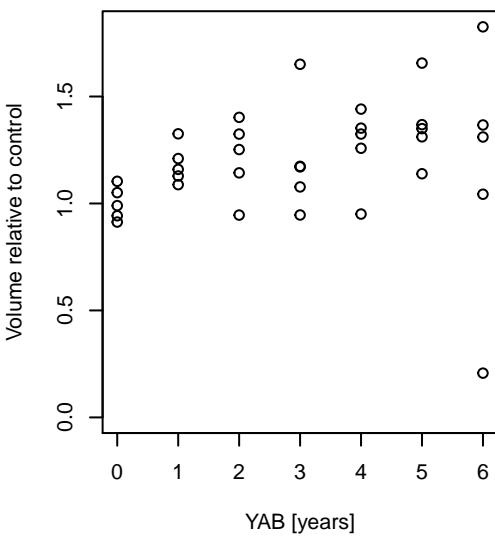
Vertical lines – 95 % confidence intervals.

Lavandula angustifolia

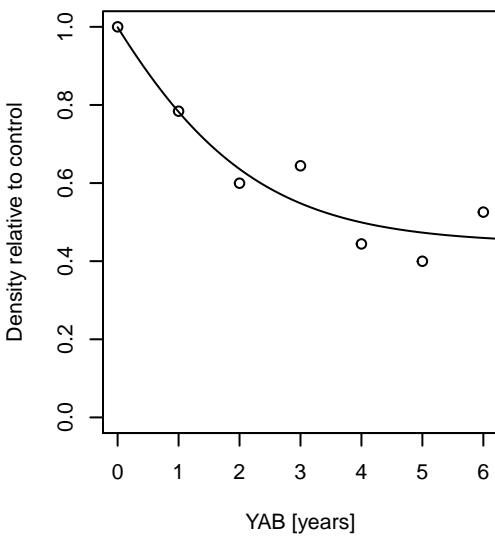
A



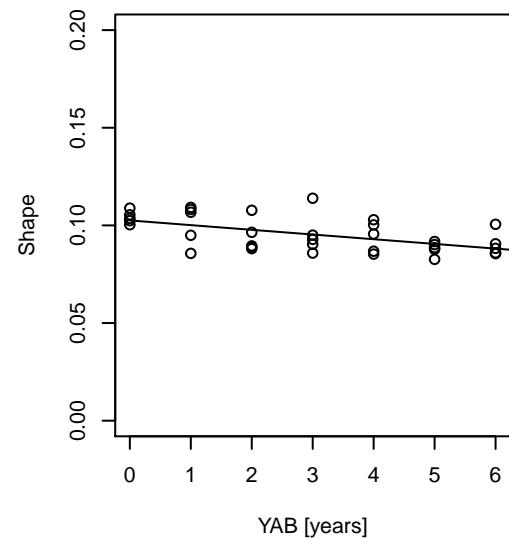
B



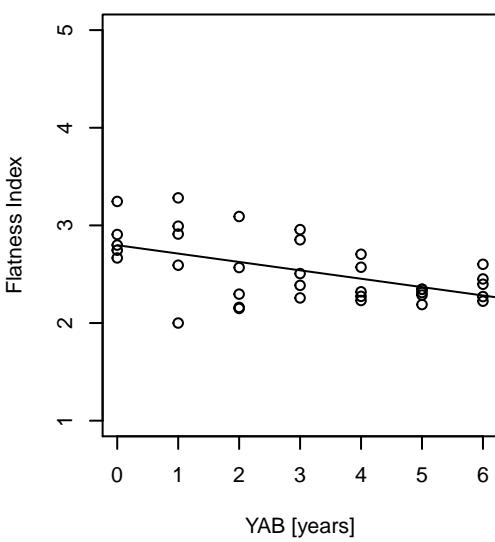
C



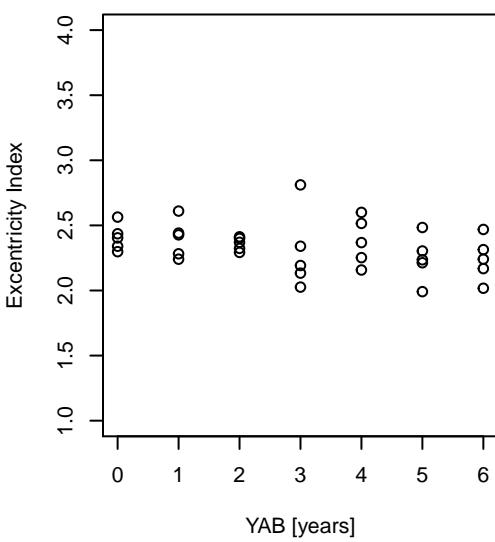
D



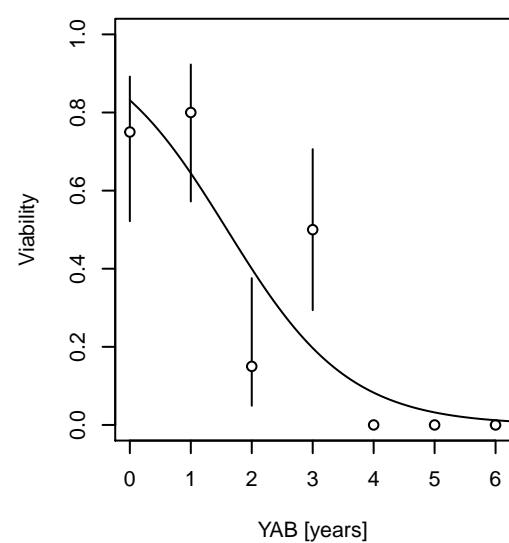
E



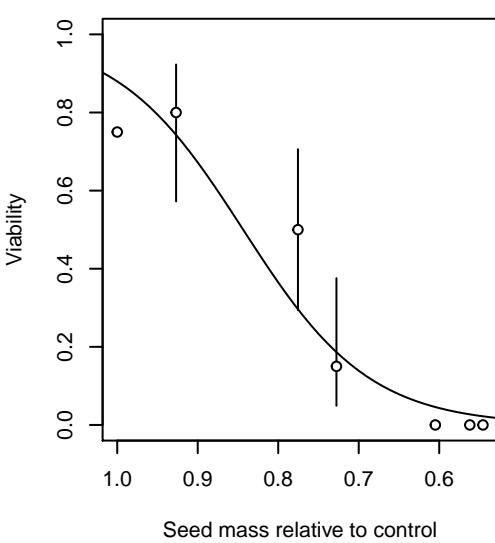
F



G



H



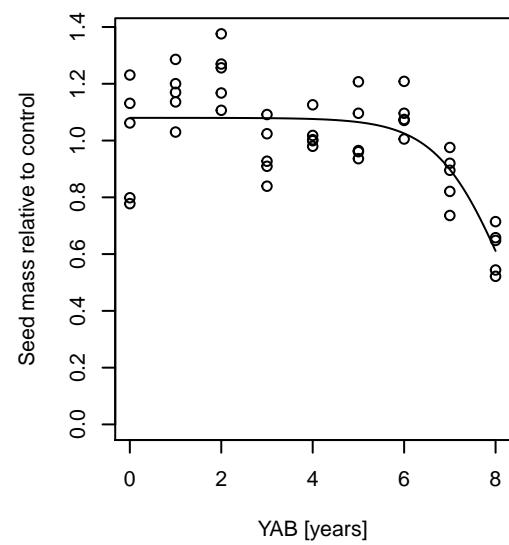
Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:
models selected based on AIC
(either linear, 3 or 4 param. logistic)

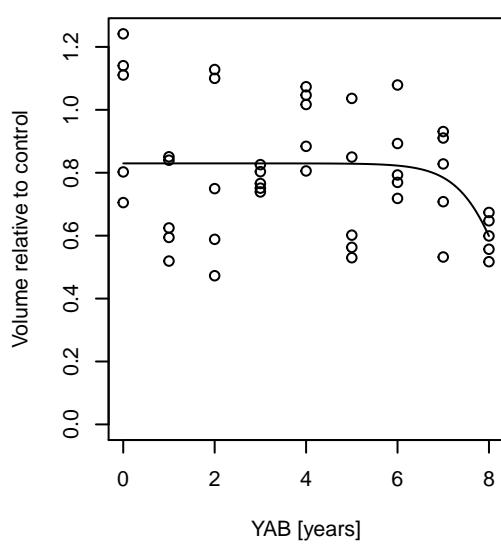
Panel G – H:
Vertical lines – 95 % confidence intervals.

Leonurus cardiaca

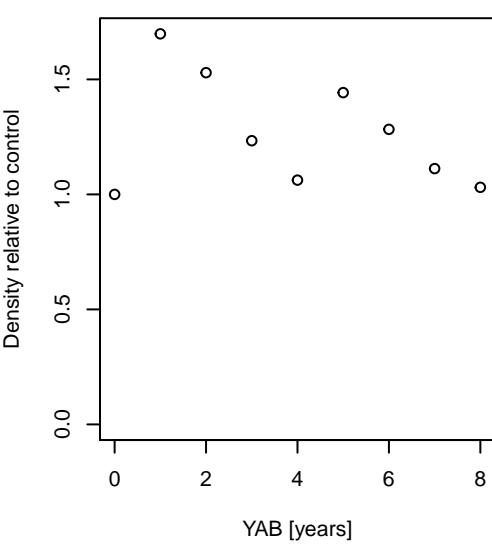
A



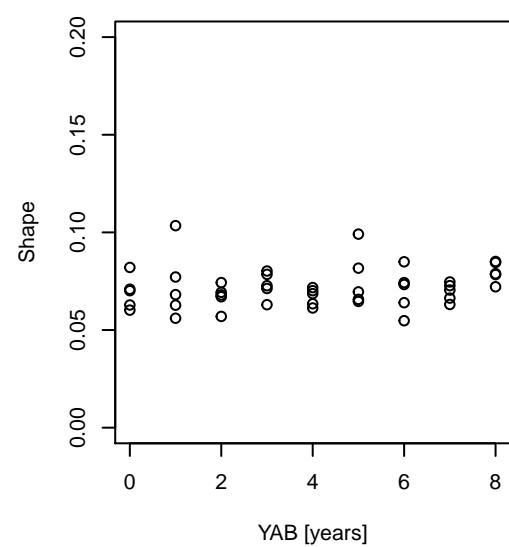
B



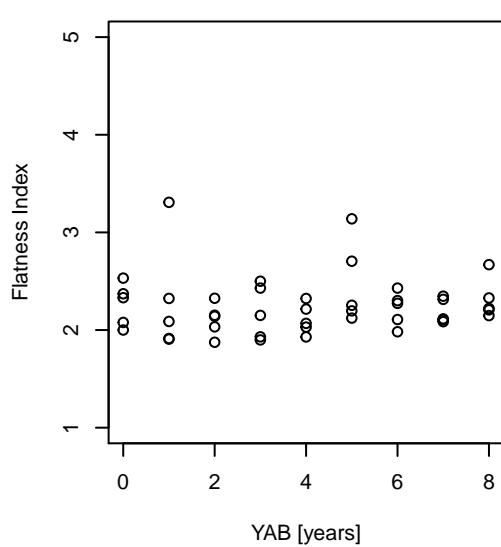
C



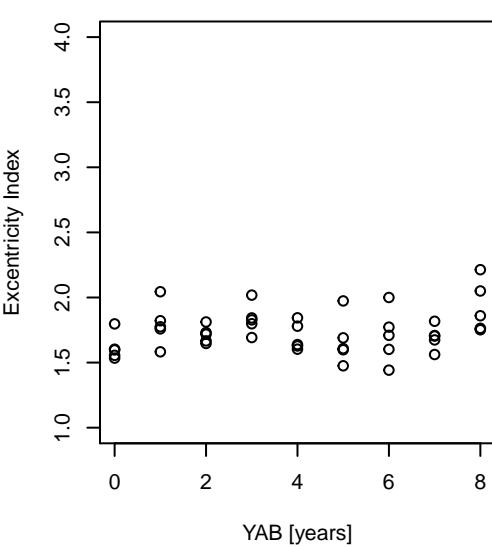
D



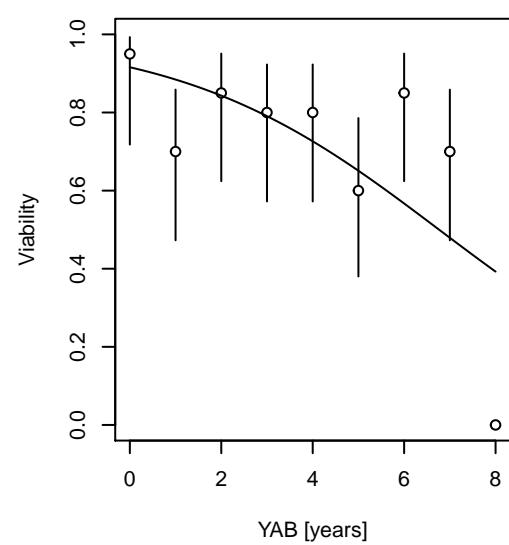
E



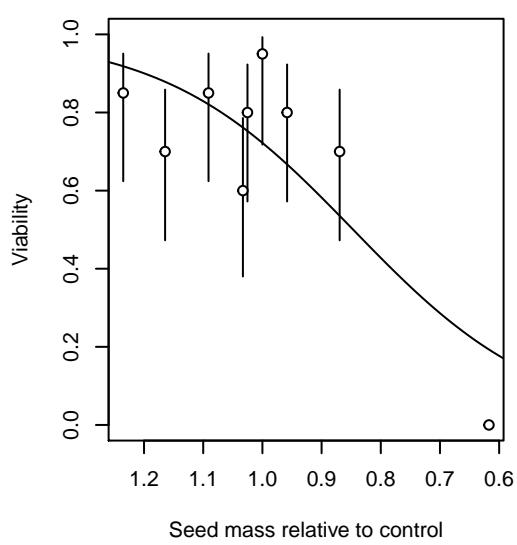
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

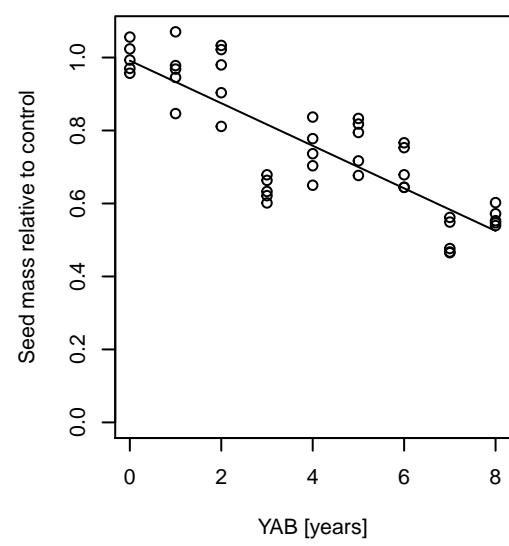
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

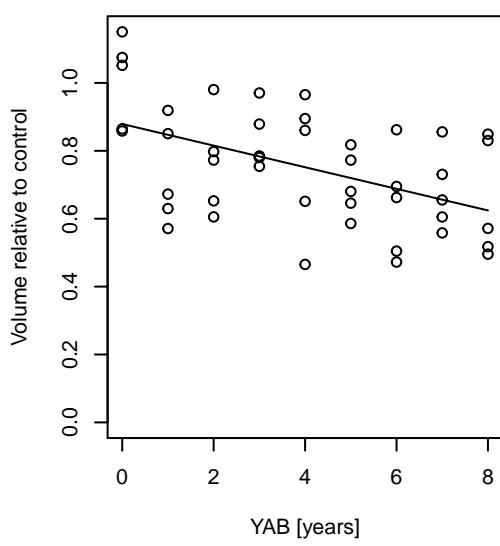
Vertical lines – 95 % confidence intervals.

Lycopus europaeus

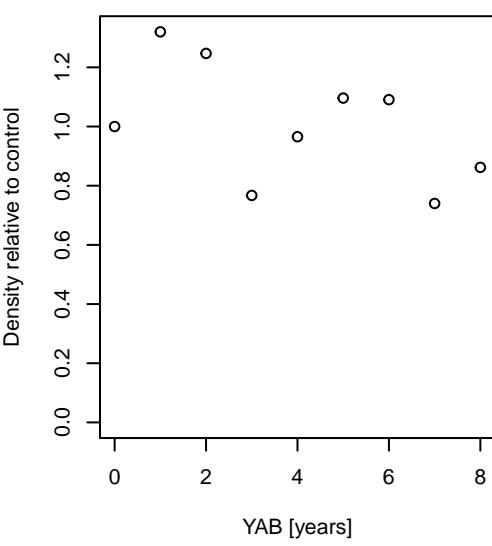
A



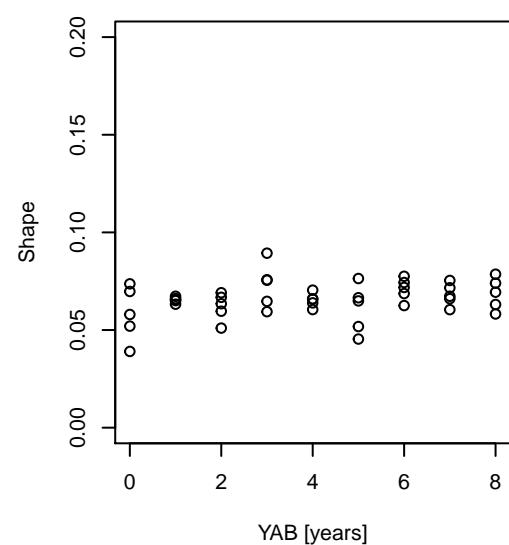
B



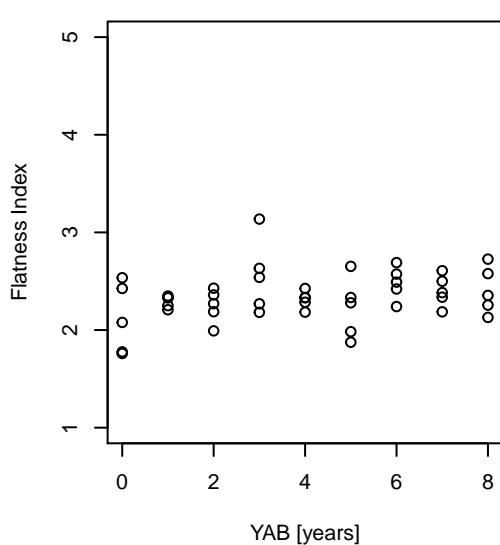
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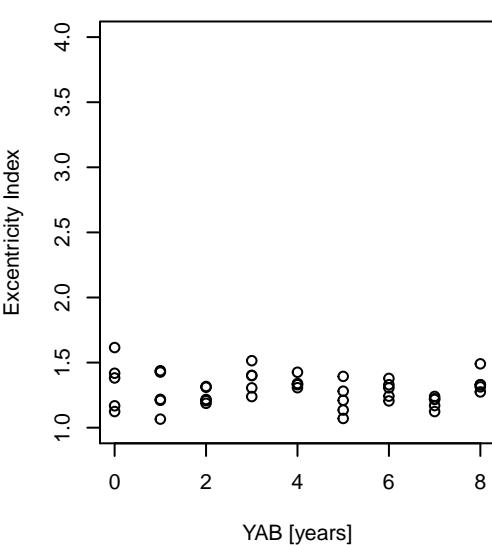
D



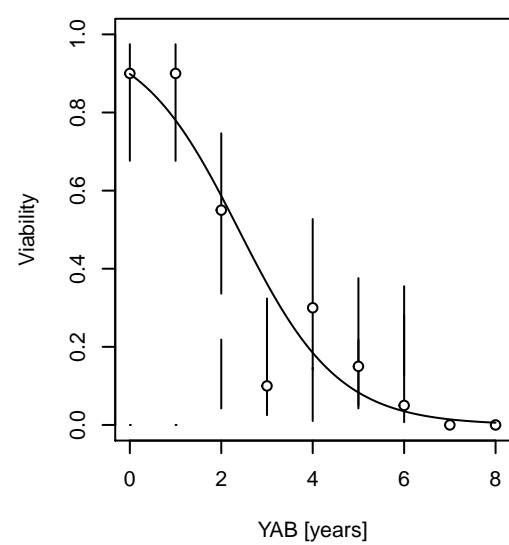
E



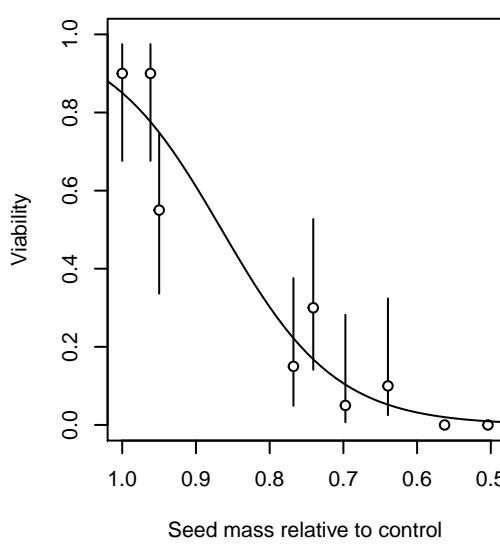
F



G



H



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Panels A – F:

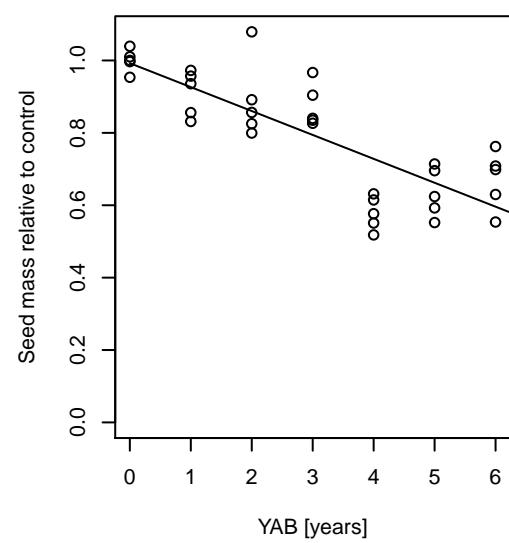
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

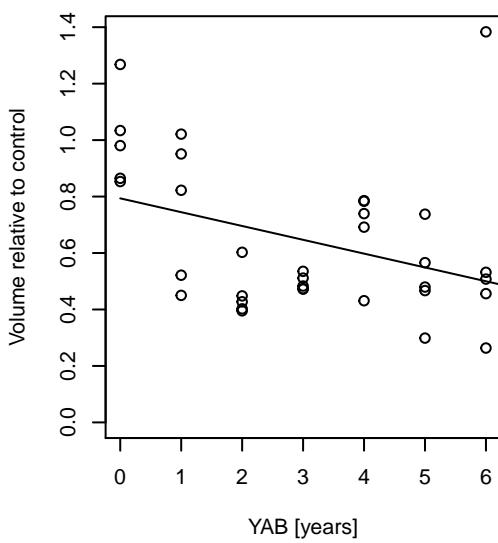
Vertical lines – 95 % confidence intervals.

Persicaria lapathifolia

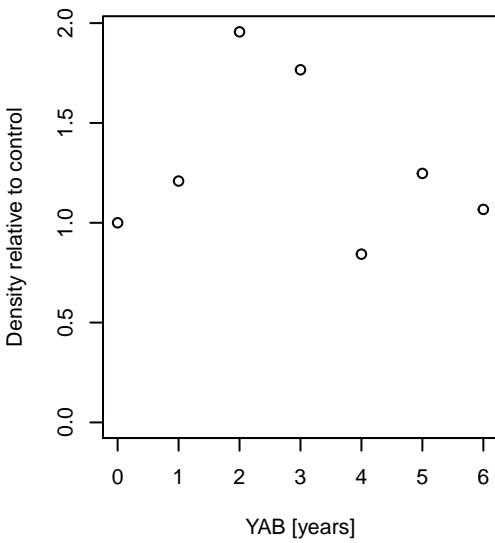
A



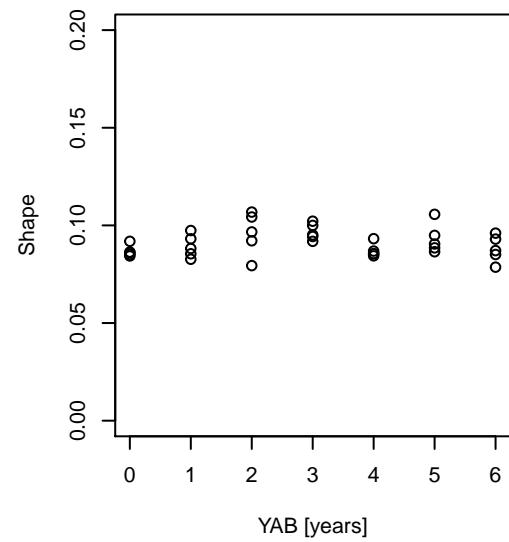
B



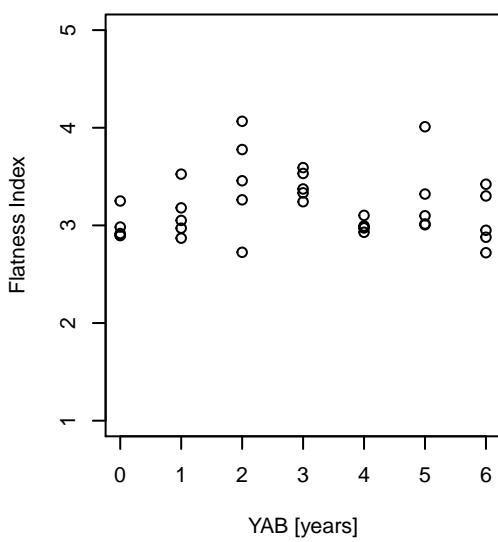
C



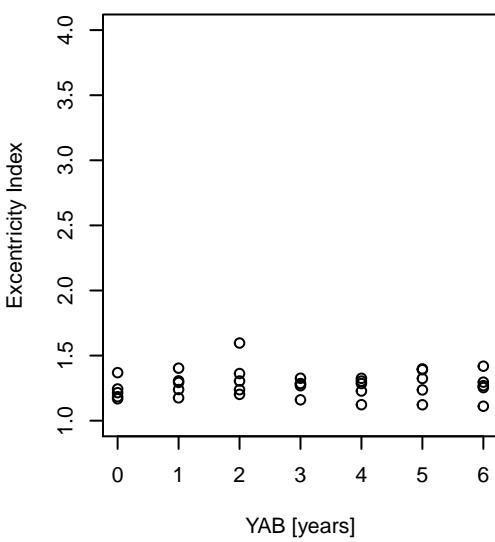
D



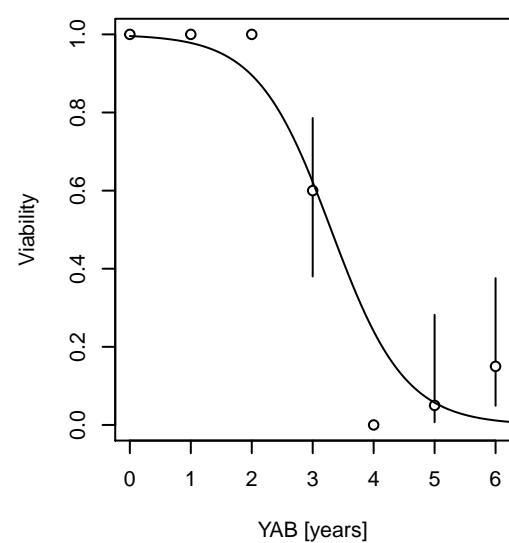
E



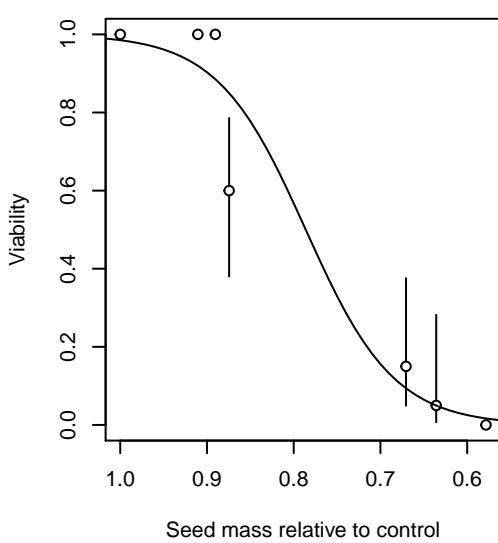
F



G



H



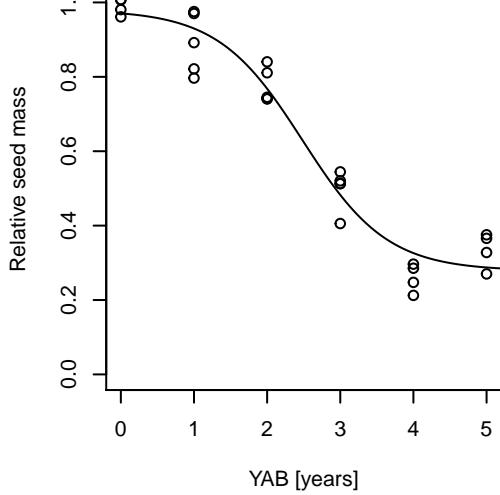
Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:
models selected based on AIC
(either linear, 3 or 4 param. logistic)

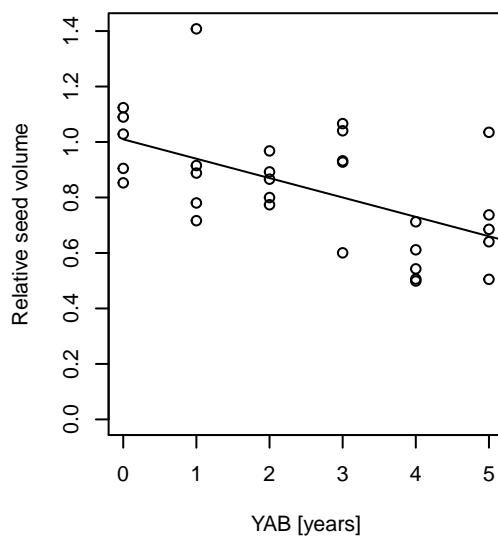
Panel G – H:
Vertical lines – 95 % confidence intervals.

Plantago lanceolata

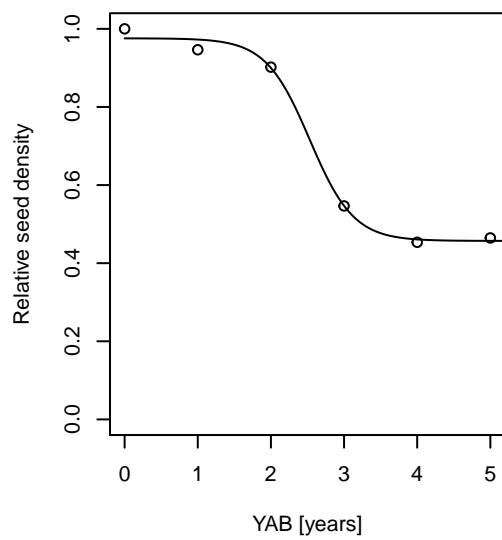
A



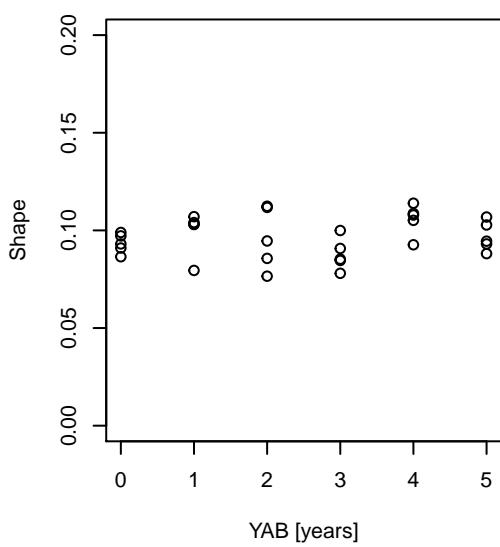
B



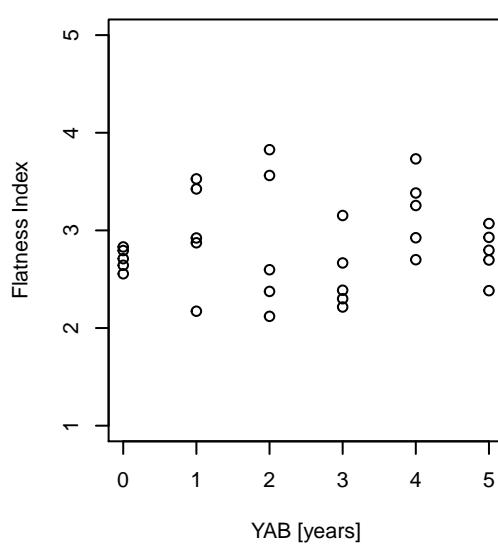
C



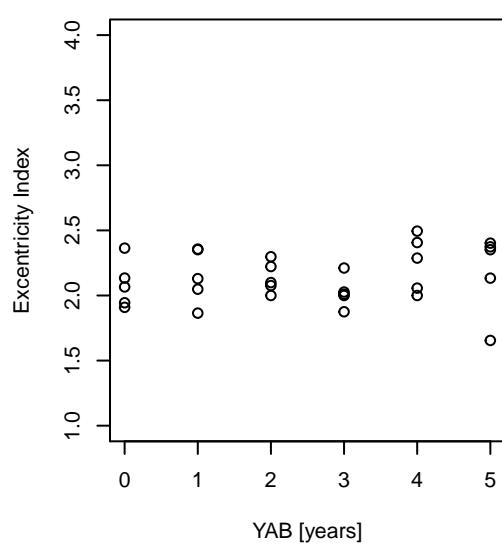
D



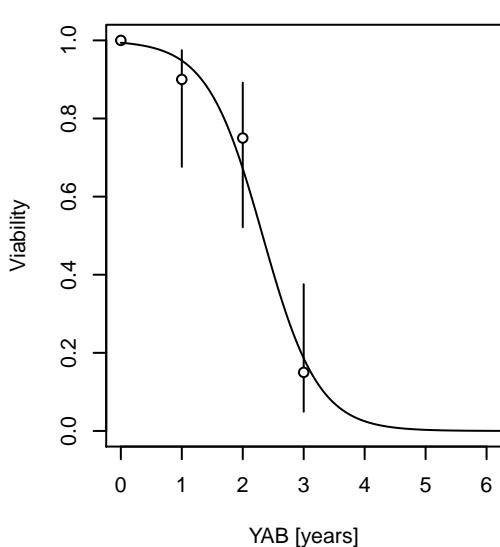
E



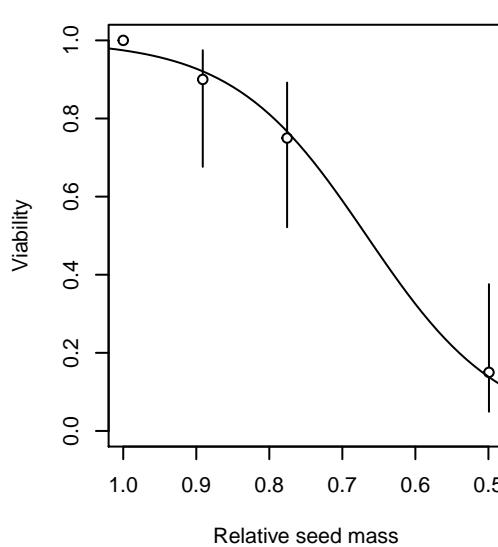
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

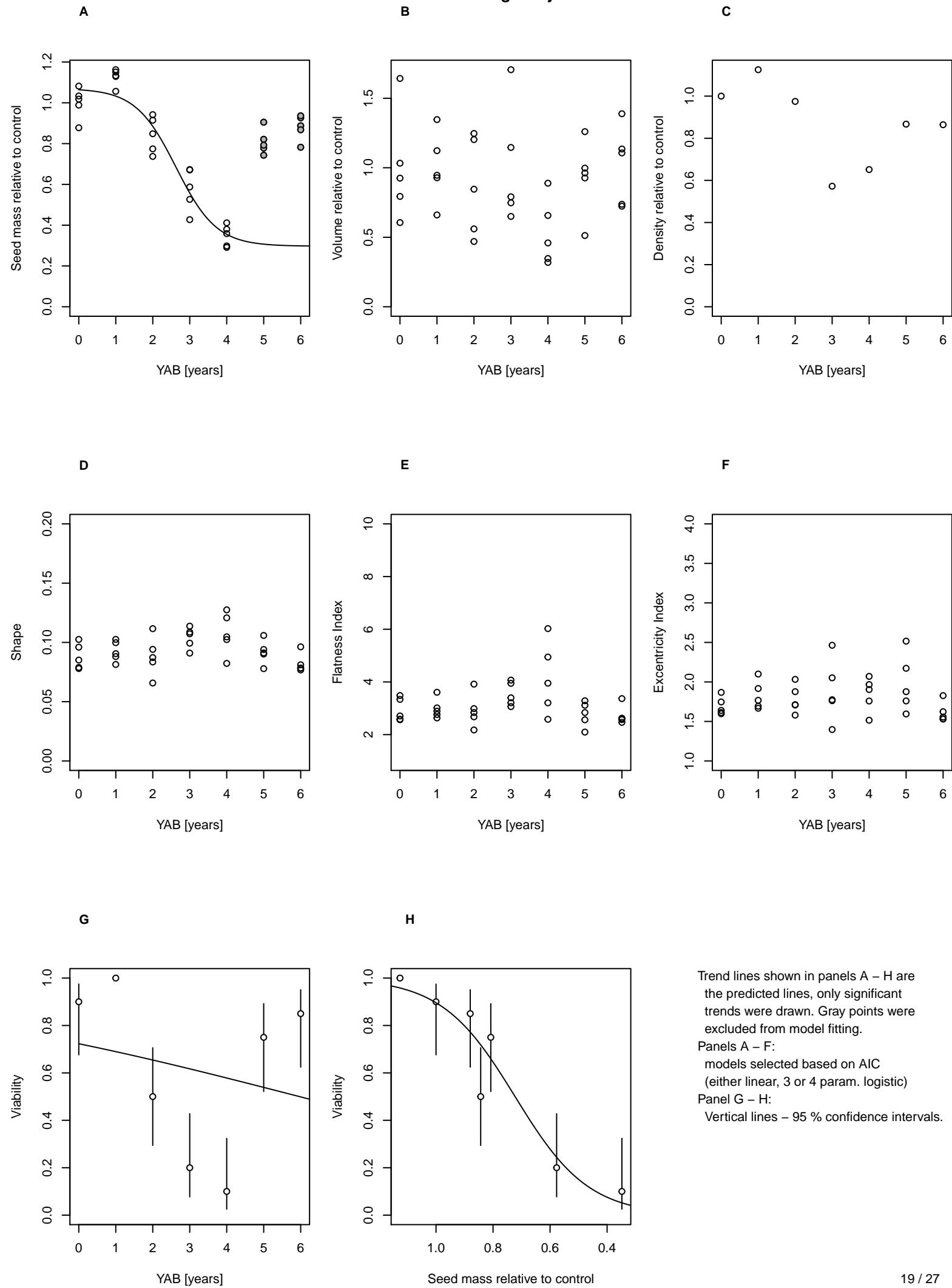
Panels A – F:

models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

Vertical lines – 95 % confidence intervals.

Plantago major

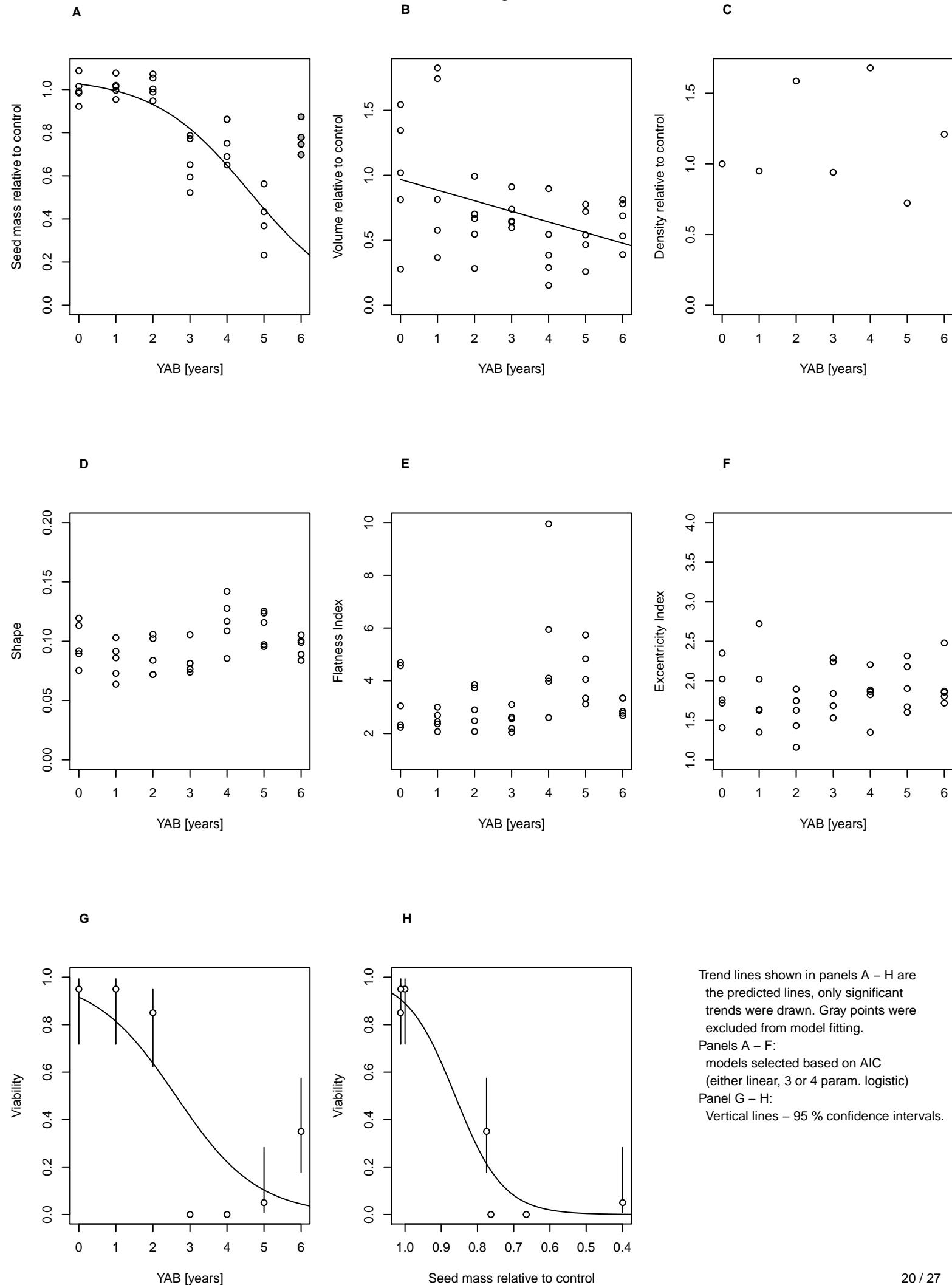


Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:
models selected based on AIC
(either linear, 3 or 4 param. logistic)

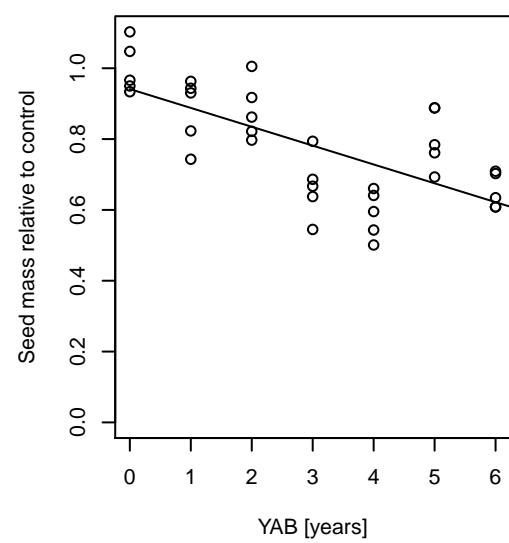
Panel G – H:
Vertical lines – 95 % confidence intervals.

Plantago media

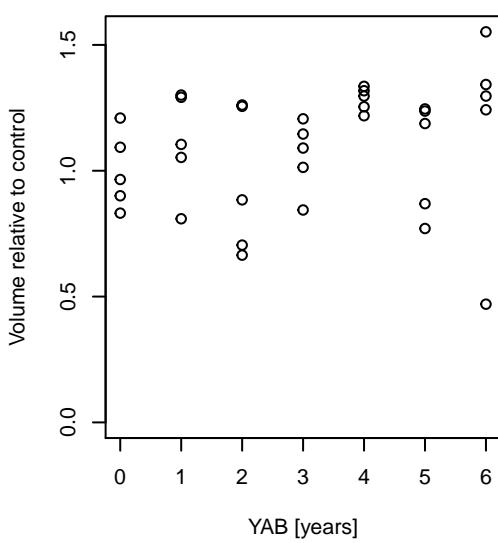


Portulaca oleracea

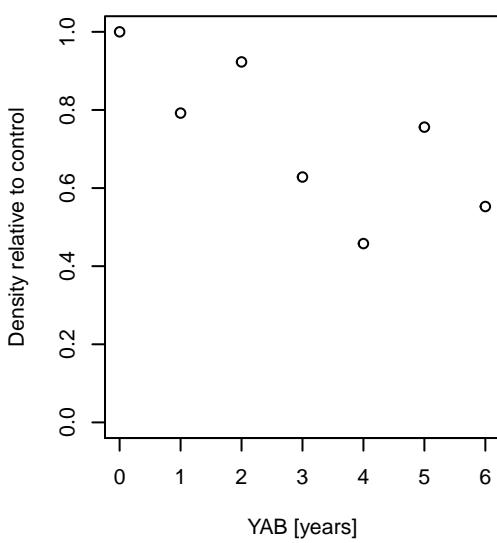
A



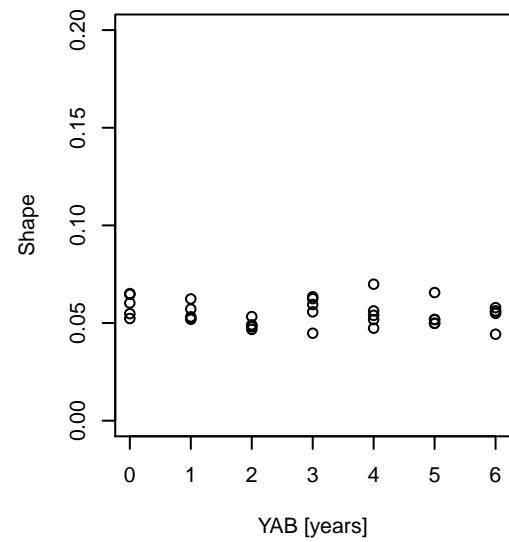
B



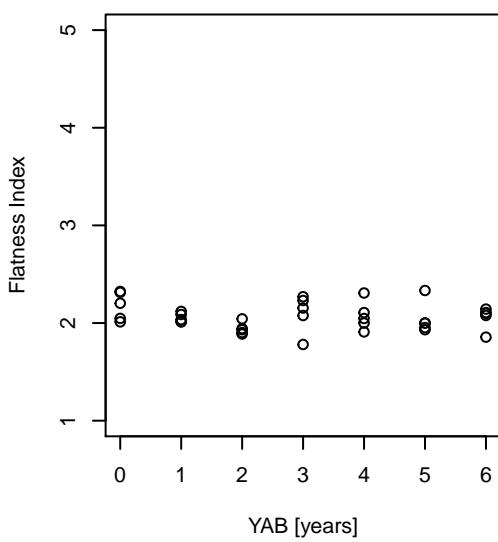
C



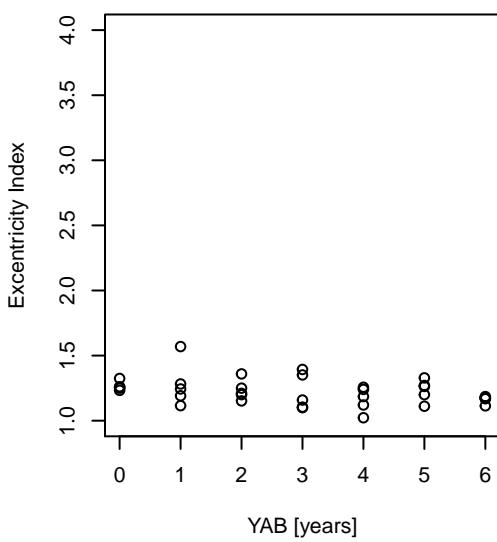
D



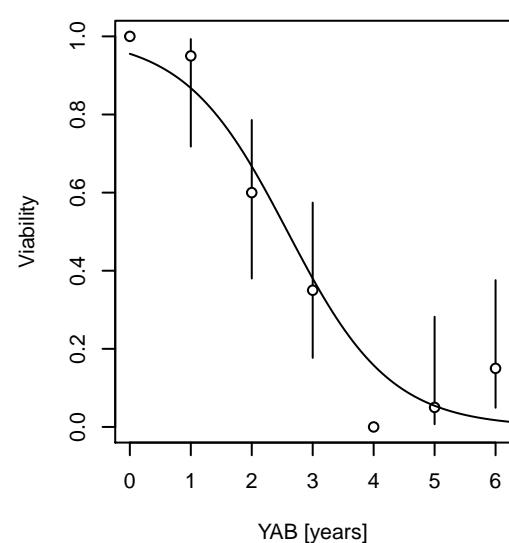
E



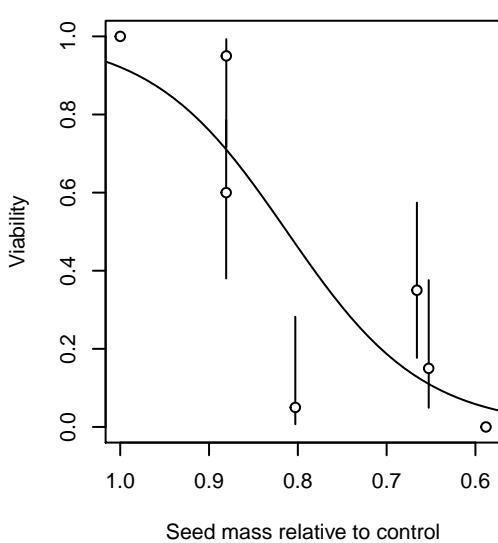
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

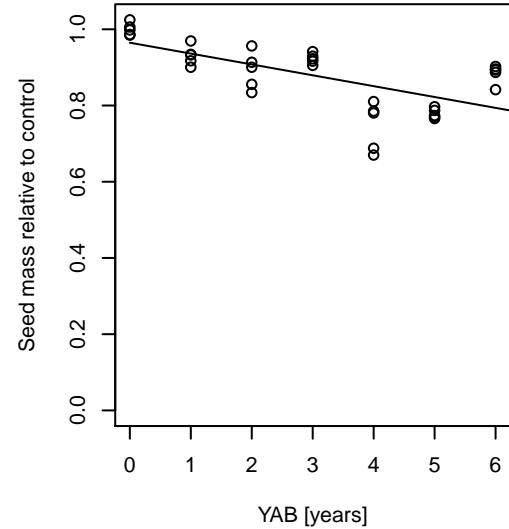
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

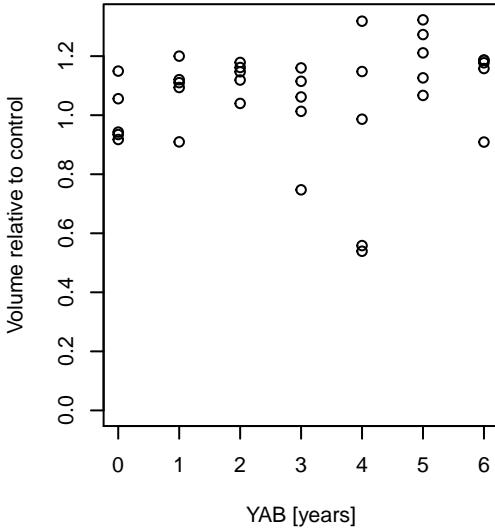
Vertical lines – 95 % confidence intervals.

Silene noctiflora

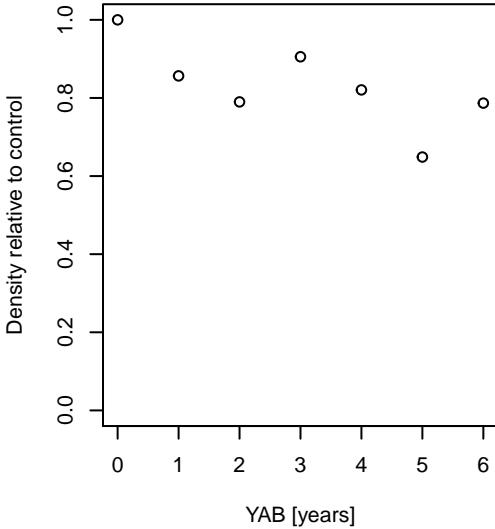
A



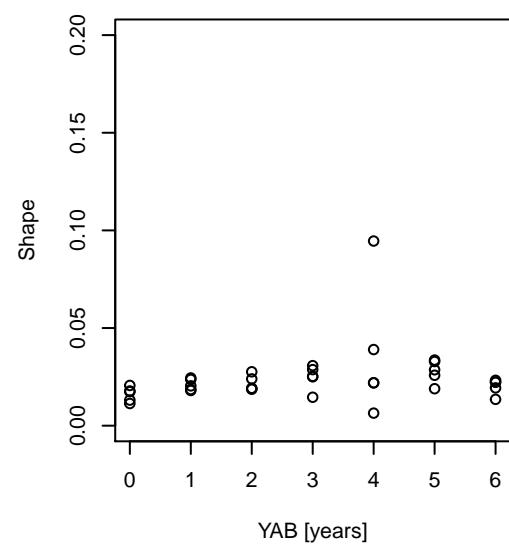
B



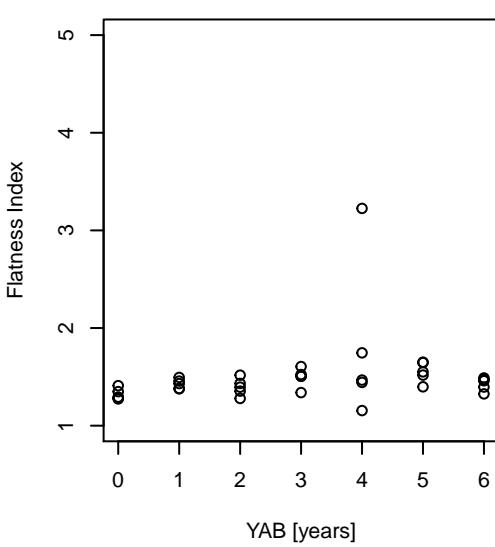
C



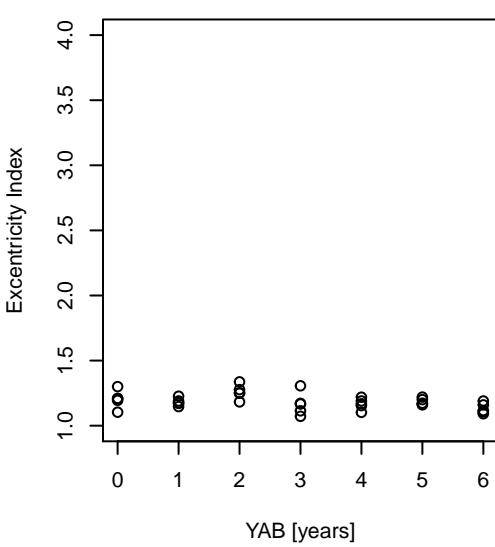
D



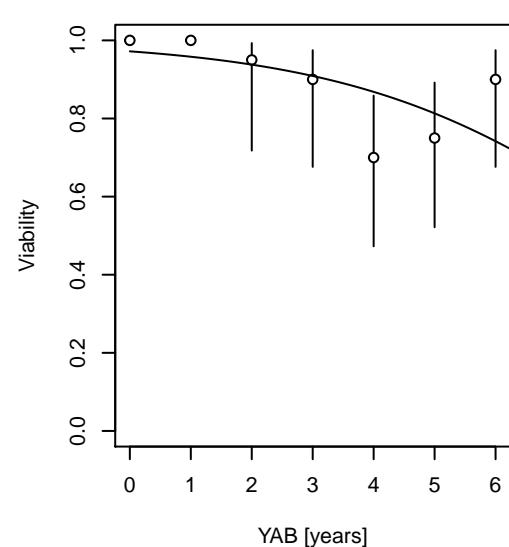
E



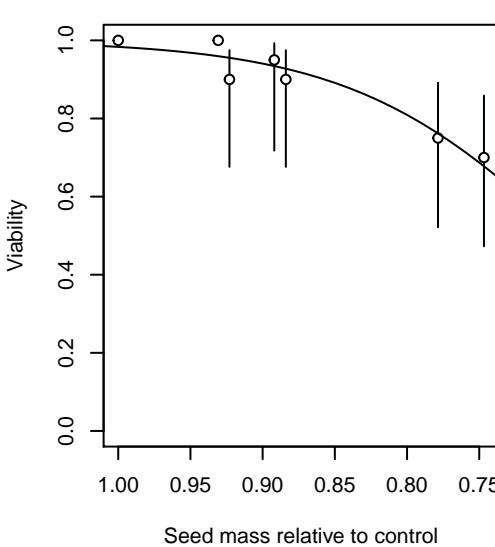
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

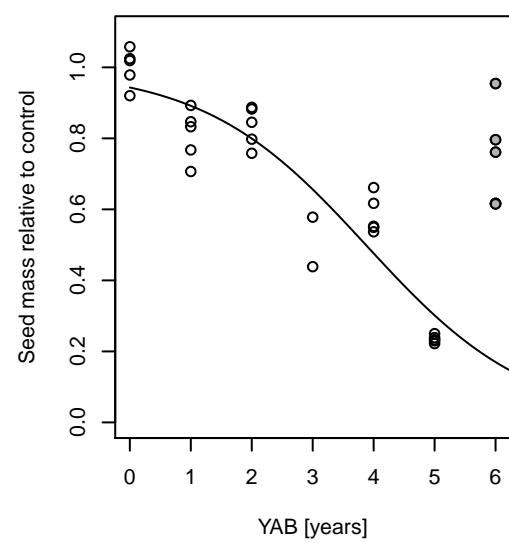
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

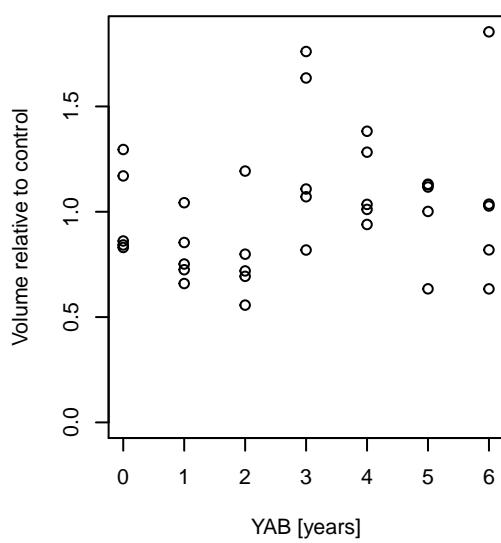
Vertical lines – 95 % confidence intervals.

Silene vulgaris

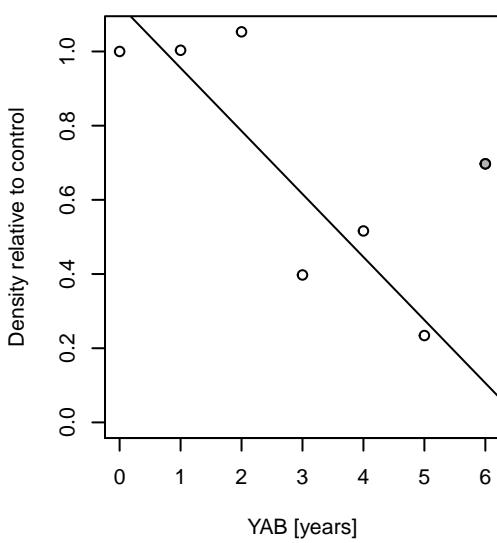
A



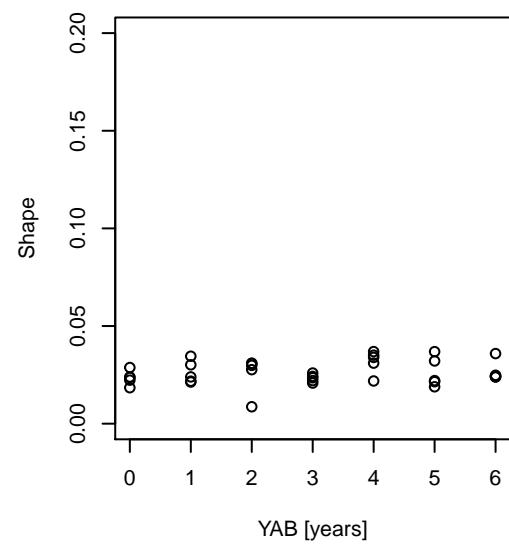
B



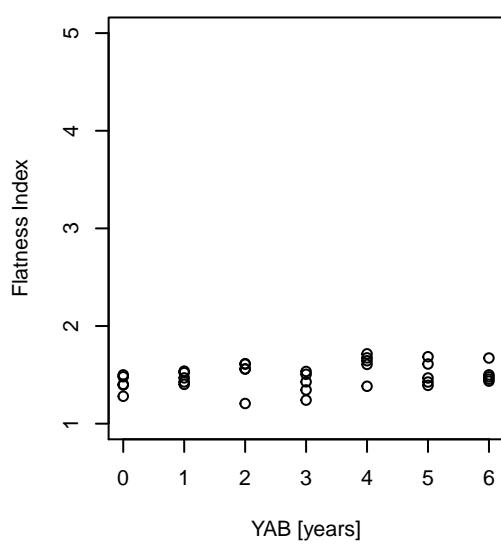
C



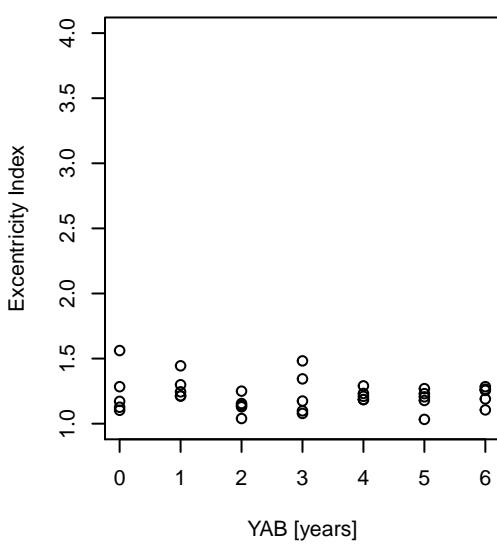
D



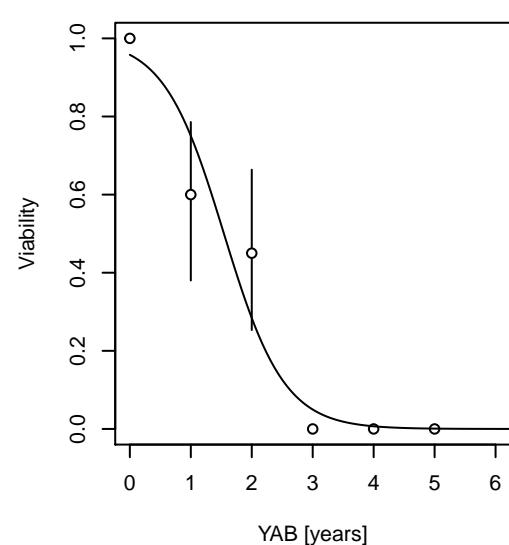
E



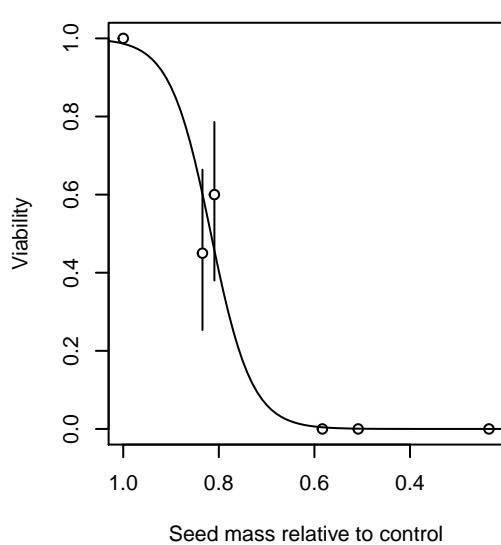
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

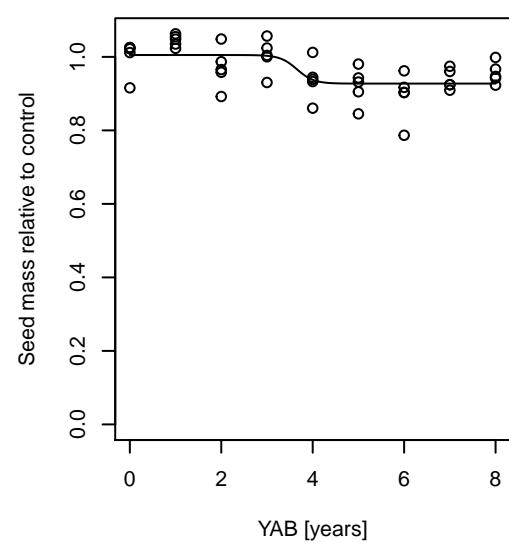
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

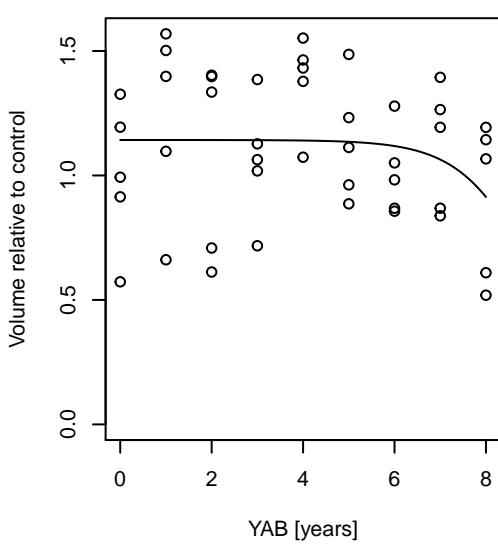
Vertical lines – 95 % confidence intervals.

Thlaspi arvense

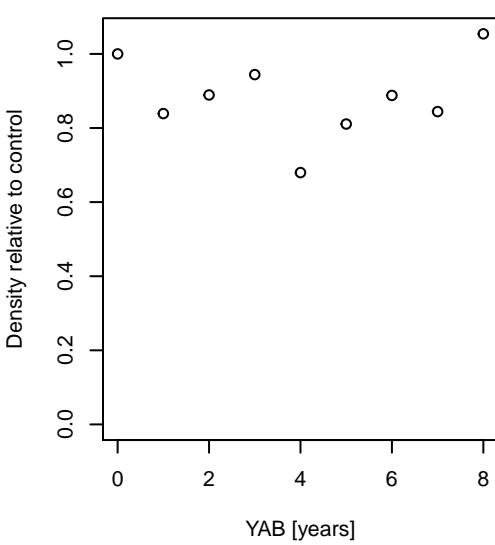
A



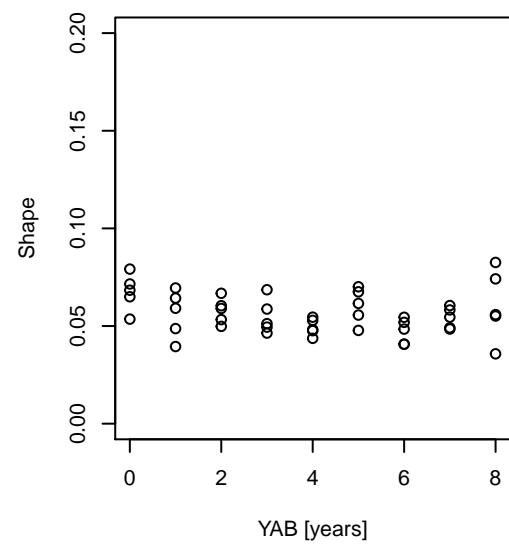
B



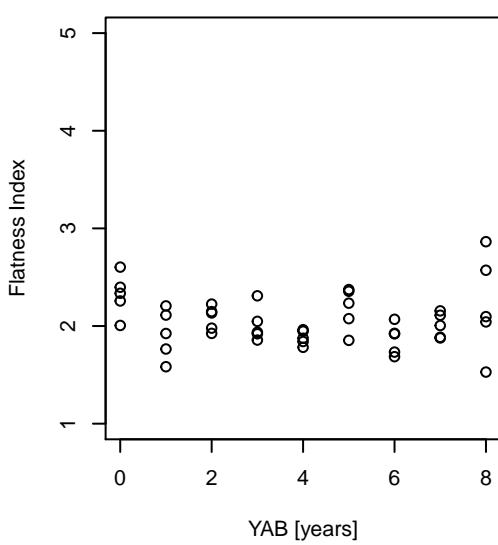
C



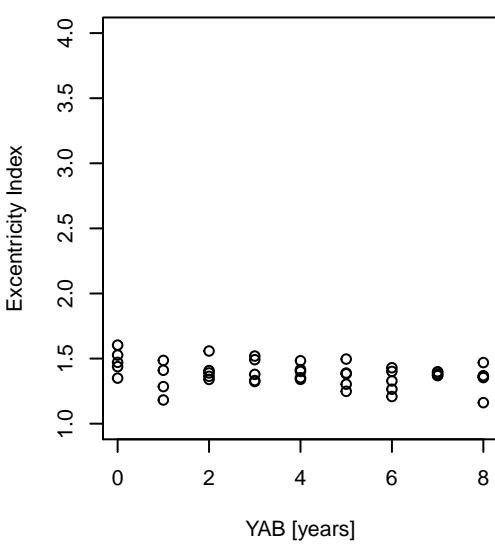
D



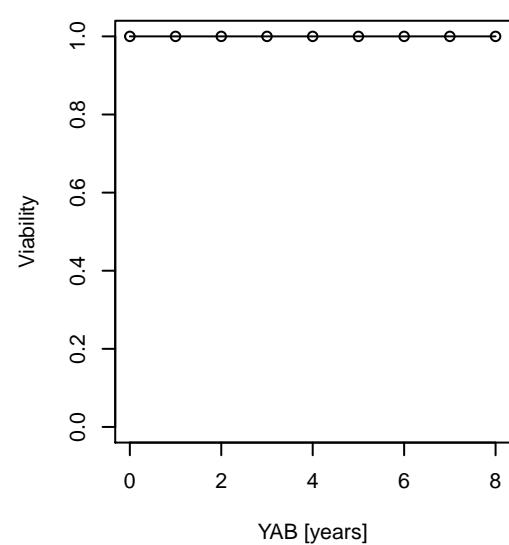
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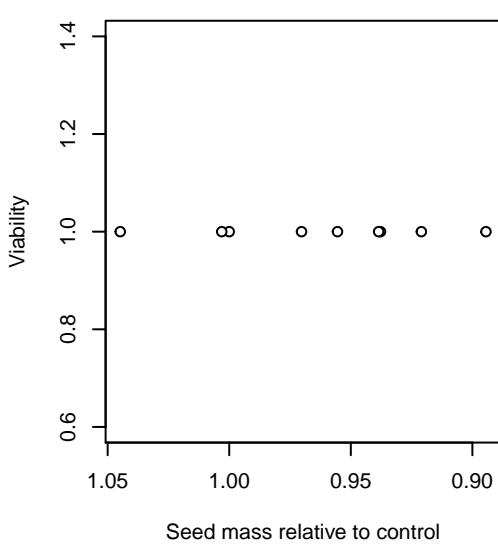
F



G



H



Trend lines shown in panels A – H are the predicted lines, only significant trends were drawn. Gray points were excluded from model fitting.

Panels A – F:

models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

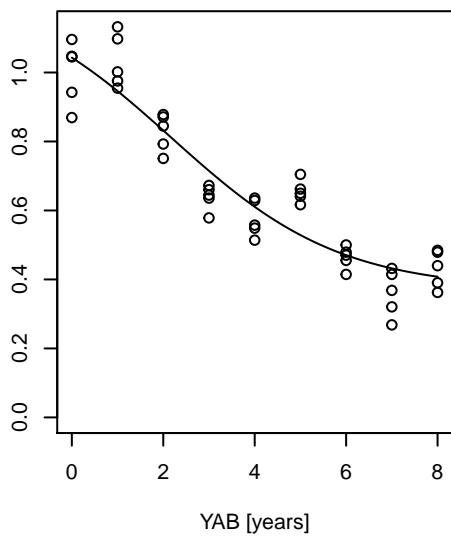
Vertical lines – 95 % confidence intervals.

Tripleurospermum inodorum

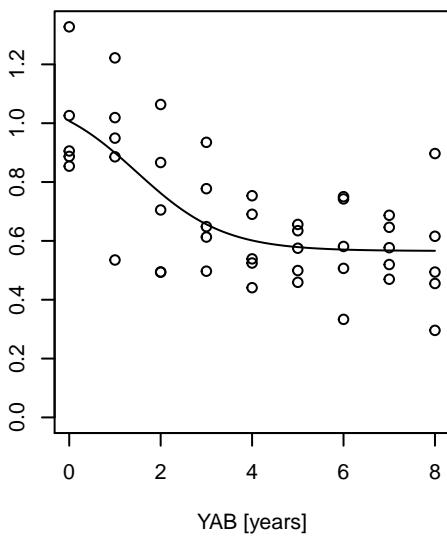
B

C

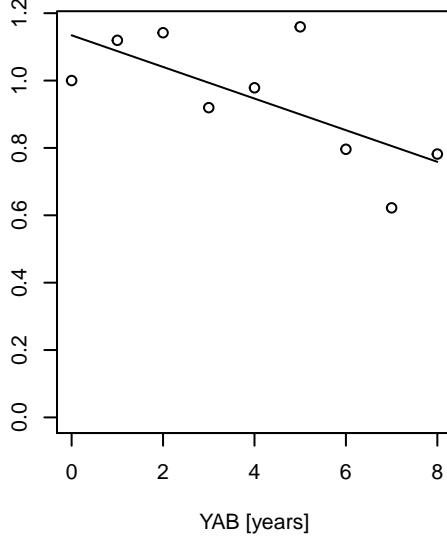
Seed mass relative to control



Volume relative to control

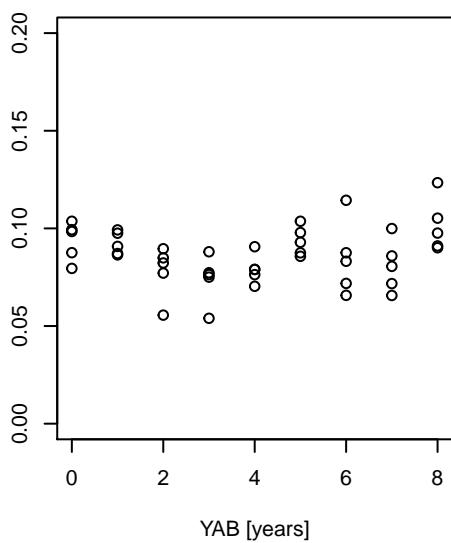


Density relative to control

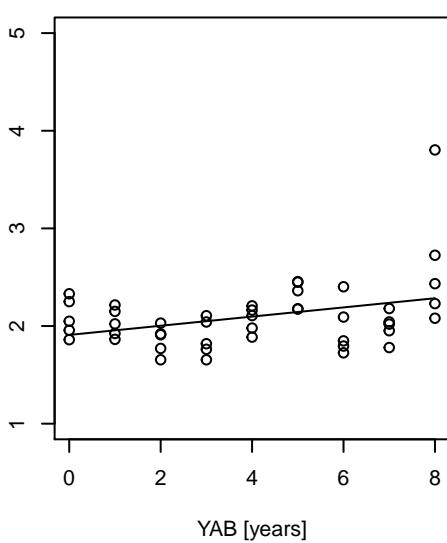


D

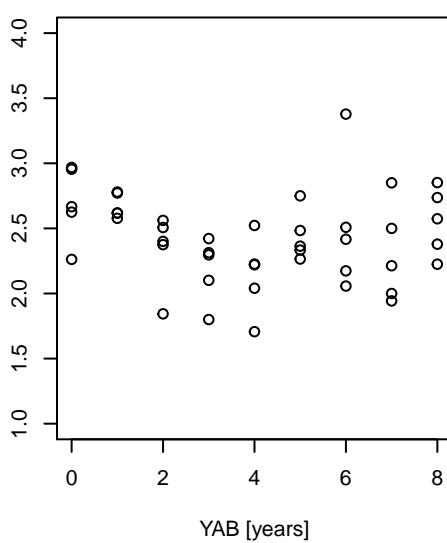
Shape



Flatness Index

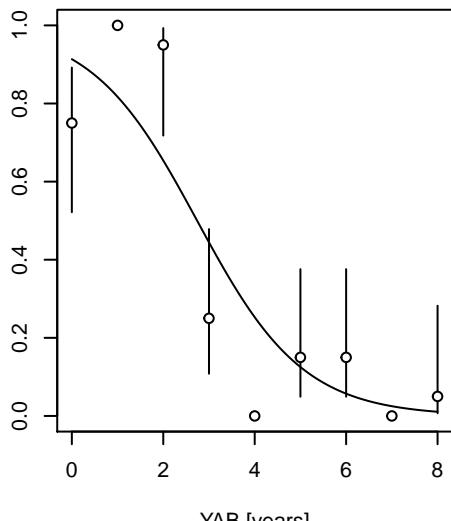


Excentricity Index

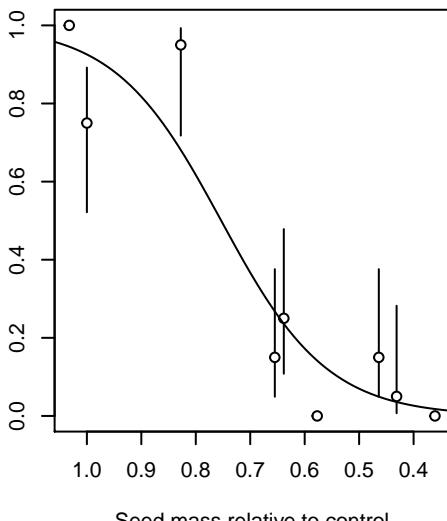


G

Viability



Viability



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Panels A – F:

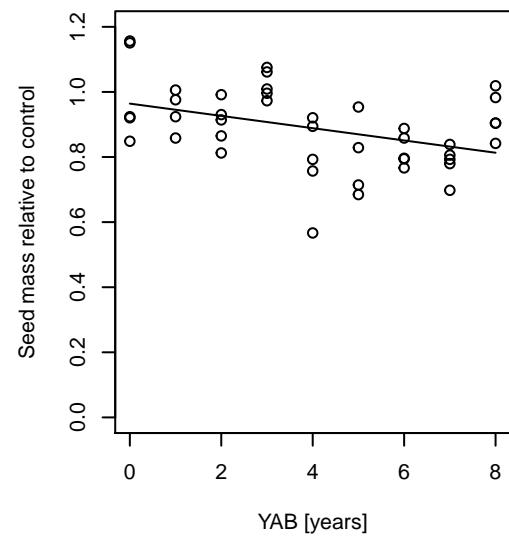
models selected based on AIC
(either linear, 3 or 4 param. logistic)

Panel G – H:

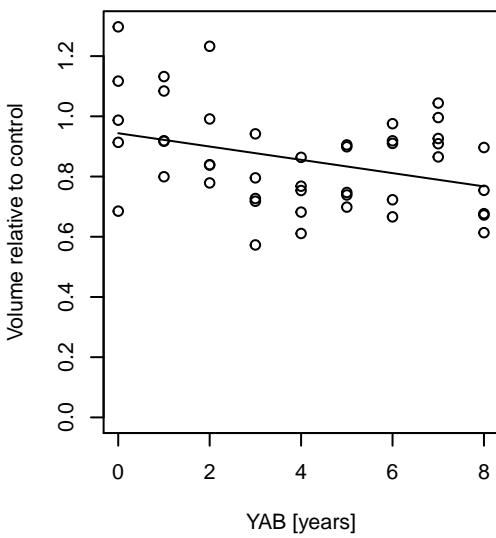
Vertical lines – 95 % confidence intervals.

Urtica dioica

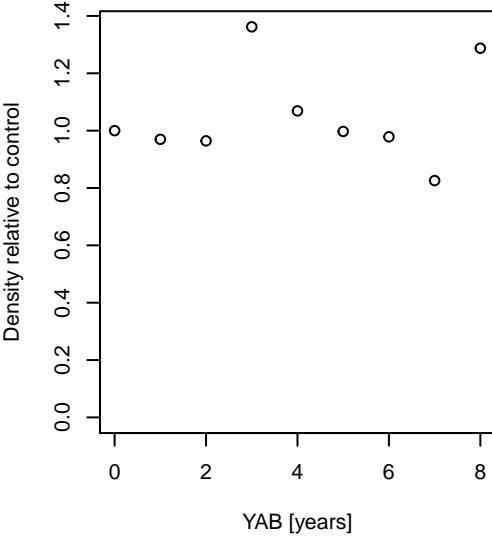
A



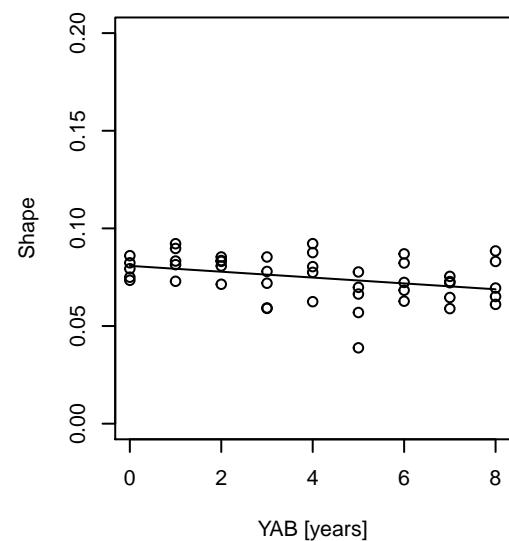
B



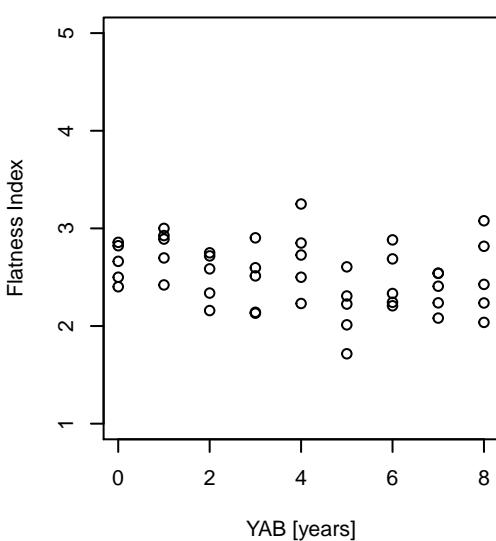
C



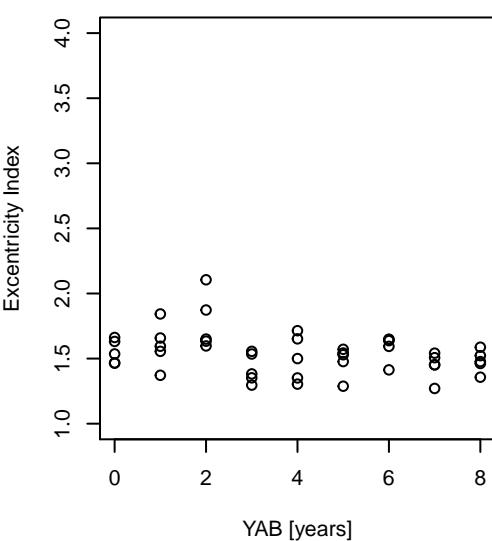
D



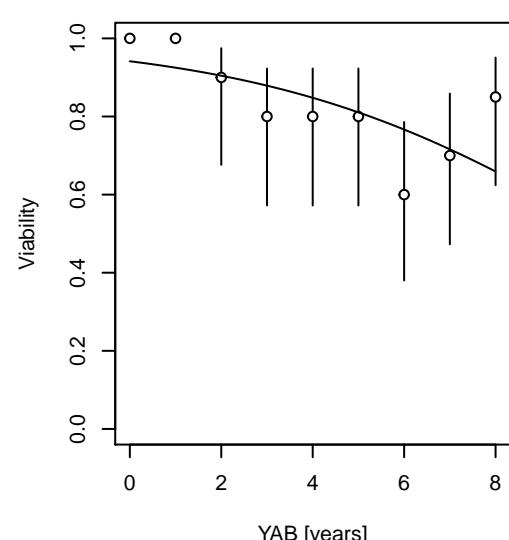
E



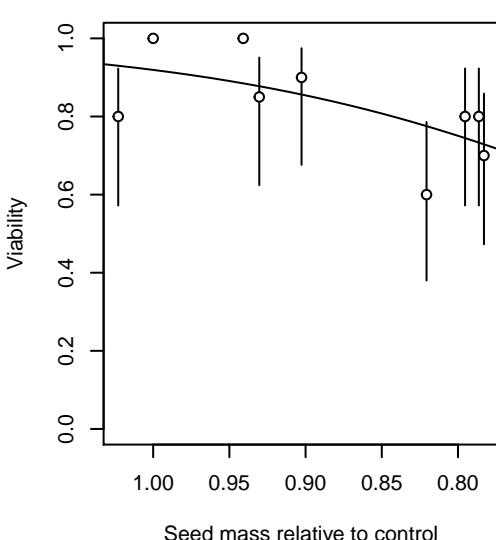
F



G



H



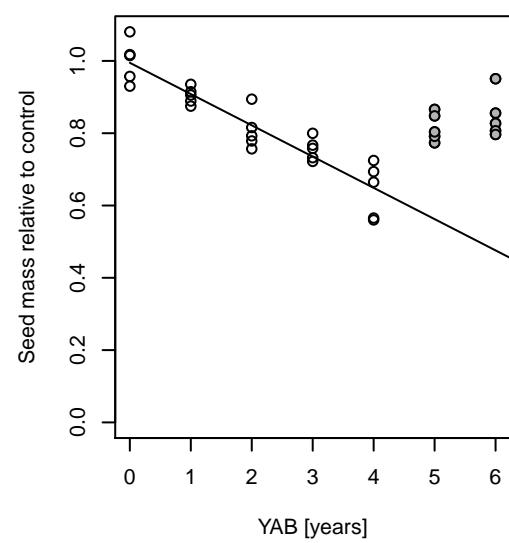
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Panels A – F:
models selected based on AIC
(either linear, 3 or 4 param. logistic)

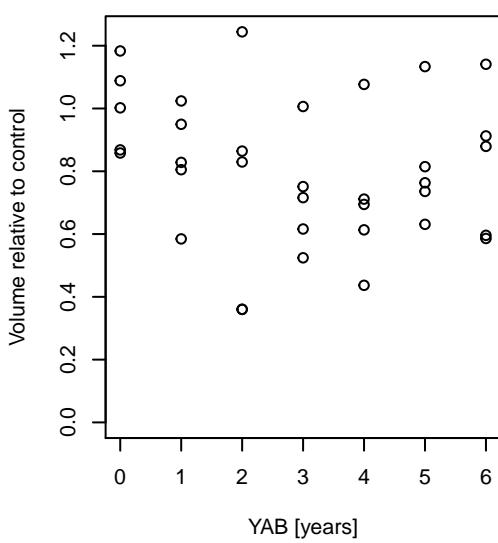
Panel G – H:
Vertical lines – 95 % confidence intervals.

Urtica urens

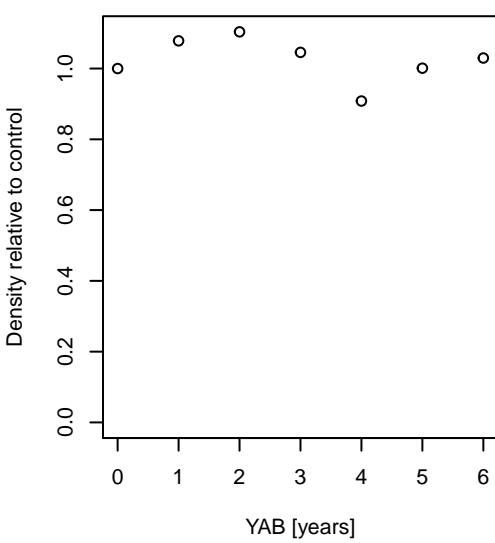
A



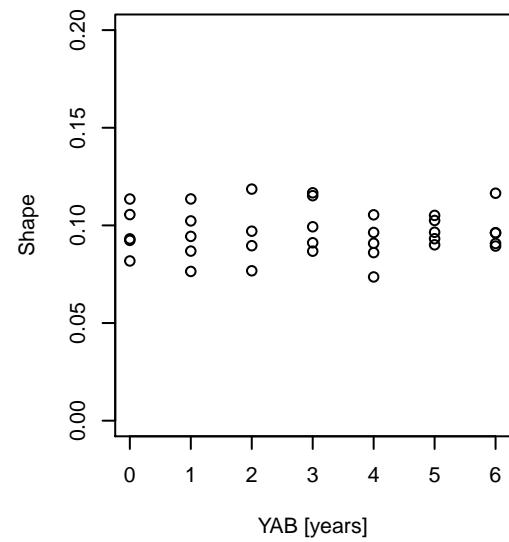
B



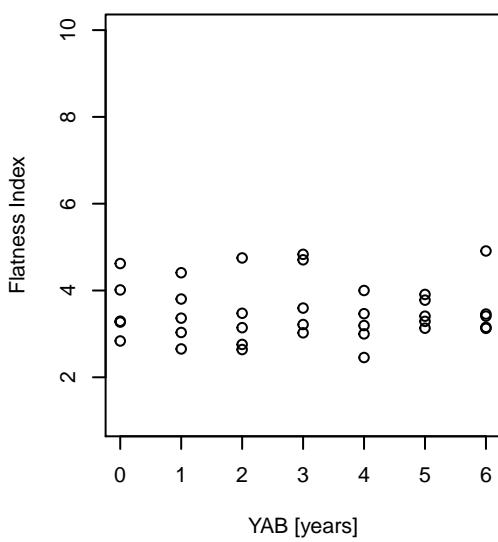
C



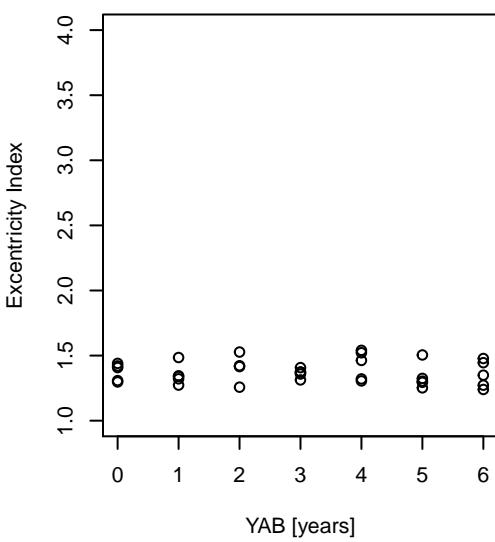
D



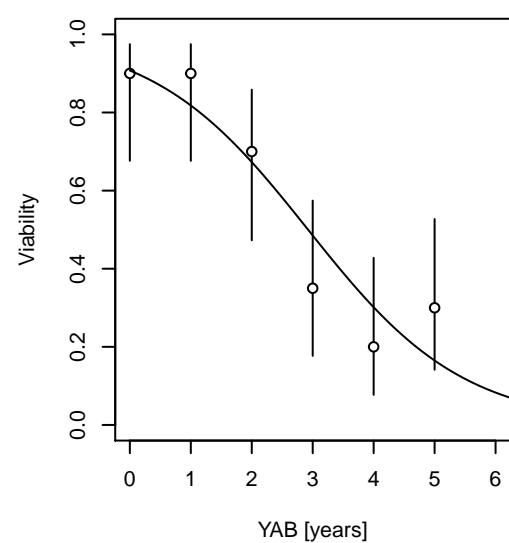
E



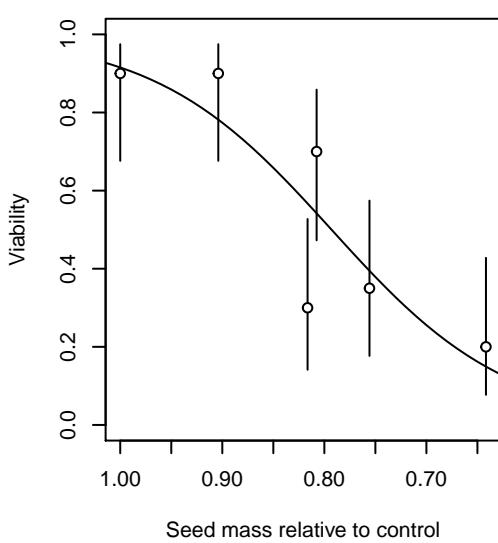
F



G



H



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(either linear, 3 or 4 param. logistic)

Panel G – H:

Vertical lines – 95 % confidence intervals.