Supplementary Material (.pdf, 447 KB)

Table S1. Literature on studies related to intraspecific seed mass, germination, and temperature.

Species	Family	Study temperature	Reference
Ambrosia artemisiifolia	Asteraceae	15/10, 25/15 ^{o}C	Guillemin, J. and Chauvel, B. (2011)
Artocarpus heterophyllus	Moraceae	Field conditions	Khan, M.L. (2004)
Astragalus praelongus	Fabaceae	Not reported	Nelson, D.M. and Johnson, C.D. (1983)
Astragalus lentiginosus			
Astragalus wootonii			
Ceratoides lanata	Chenopodiaceae	18 ^{o}C	Hou, J. and Romo, J.T. (1998)
Artemisia cana	Asteraceae		
Coreopsis lanceolata	Asteraceae	25 ^{o}C	Banovetz, S.J. and Scheiner, S.M. (1994)
Festuca rubra	Poaceae	5/15 and 15/25 ^{o}C	Larsen, S.U. and Andreasen, C. (2004)
Lolium perenne			
Poa pratensis			
Helianthus annuus	Asteraceae	20 ^{o}C	Hernandez, L.F. and Orioli, G.A. (1985)

Heracleum mantegazzianum	Apiaceae	8-10 ^{o}C	Moravcova *et al.* (2005)
Hyptis suaveolens	Lamiaceae	20, 25, 30, 35, 40 ^{o}C	Wulff, R. (1973)
Lithospermum arvense *Anchusa arvensis*	Boraginaceae	18.5 and 24 ^{o}C	Milberg *et al.* (1996)
Lupinus texensis	Fabaceae	Not reported	Schaal, B.A. (1980)
Mirabilis hirsuta	Nyctaginaceae	21.0 ^{o}C	Weis, I.M. (1982)
Pastinaca sativa	Apiaceae	25/15 ^{o}C and field conditions	Hendrix, S.D. (1984) Hendrix, D. and Trapp, J. (1992)
Pinus strobus	Pinaceae	30/20 ^{o}C	Parker *et al.* (2006)
Primula veris	Primulaceae	Field conditions	Lehtila, K. and Ehrlen, J. (2005)
Quercus dealbata *Quercus griffithii*	Fagaceae	22 ^{o}C and field conditions	Tripathi, R.S. and Khan, M.L. (1990)
Raphanus raphanistrum	Brassicaceae	15-22 ^{o}C and field conditions	Stanton, M.L. (1984)

Sesbania macrocarpa	Fabaceae	16.5/14, 29/26 ^{o}C	Marshall, D.L. (1986)
Sesbania vesicaria			
Sesbania drummondii			
Tragopogon porrifolius	Asteraceae	20/15 ^{o}C and ambient conditions	Torices, R. and Mendez, M. (2010)
Tragopogon pratensis	Asteraceae	19 ^{o}C	van Molken *et al.* (2005)
Xanthium strumarium	Asteraceae	20/12 ^{o}C	Zimmerman, J.K. and Weis, I.M. (1983)

Table S2. Germination summary statistics for *Rudbeckia mollis* mass classes exposed to simulated seasonal and constant temperatures. Seasonal temperatures alternated every 12 hours and simulated conditions during the winter (22/11 °C), late fall or early spring (27/15 °C), early fall or late spring (29/19 °C), or summer (33/24 °C) throughout Florida.

Temperature (^{o}C)	Mass class	n	Total final germination (%)	Viable seed fraction (%)	Germination rate ($1 \cdot t_{50}^{-1}$)
Seasonal temperatures					
22/11	Light	50	100	100	0.20
	Intermediate	50	92	92	0.17
	Heavy	50	90	90	0.17
27/15	Light	49	92	92	0.25
	Intermediate	50	92	94	0.25
	Heavy	50	98	98	0.25
29/19	Light	50	92	92	0.25
	Intermediate	50	90	90	0.25
	Heavy	50	98	98	0.25
33/24	Light	50	40	48	-[z]
	Intermediate	50	38	44	-
	Heavy	50	44	46	-
Constant temperatures					
27.5	Light	50	94	94	0.33

	Intermediate	50	94	94	0.33
	Heavy	50	98	98	0.33
30.0	Light	50	92	92	0.33
	Intermediate	50	94	94	0.33
	Heavy	50	92	92	0.33
32.5	Light	49	86	86	0.13
	Intermediate	50	90	90	0.20
	Heavy	50	94	94	0.13
35.0	Light	50	24	24	-[z]
	Intermediate	50	38	40	-
	Heavy	50	22	30	-
37.5	Light	50	0	0	-
	Intermediate	50	0	0	-
	Heavy	50	2	2	-

[z]Missing data indicate the Kaplan-Meier estimator did not reach a failure probability > 0.50.

Table S3. Germination summary statistics for *Rudbeckia mollis* mass classes following saturated salt accelerated ageing (SSAA) for 0-30 days. SSAA utilized a saturated NaCl solution and was carried out within an incubator at 41.0^{o}C. Germination was evaluated at 25.0^{o}C following each ageing duration.

SSAA duration (days)	Mass class	n	Total final germination (%)	Viable seed fraction (%)	Germination rate ($1 \cdot t_{50}^{-1}$)
0	Light	100	91	91	0.33
	Intermediate	100	91	91	0.33
	Heavy	100	91	91	0.33
5	Light	100	92	92	0.33
	Intermediate	100	92	92	0.25
	Heavy	100	91	91	0.25
10	Light	100	93	93	0.25
	Intermediate	100	88	88	0.17
	Heavy	100	89	89	0.20
15	Light	100	63	63	0.13
	Intermediate	100	60	60	0.11
	Heavy	100	67	67	0.09
20	Light	100	60	62	0.10
	Intermediate	100	37	38	-[z]
	Heavy	100	34	35	-
25	Light	100	25	26	-

	Intermediate	100	17	17	-
	Heavy	100	19	19	-
30	Light	100	1	2	-
	Intermediate	100	0	0	-
	Heavy	100	0	0	-

[z]Missing data indicate the Kaplan-Meier estimator did not reach a failure probability > 0.50.

Figure S1. Kaplan-Meier survival curves for the germination response of mass-separated *Rudbeckia mollis* seeds stored in the laboratory (ca. 23-24 °C, 30-40% RH) for one year followed by exposure to simulated seasonal (A-D) and constant (E-I) temperature conditions. A) Winter (22/11 °C), B) late fall or early spring (27/15 °C), C) early fall or late spring (29/19 °C), D) summer (33/24 °C), E) 27.5 °C, F) 30.0 °C, G) 32.5 °C, H) 35.0 °C, and I) 37.5 °C. Lines represent the light (solid), intermediate (short dash), and heavy (dotted) mass classes. Black circles represent censored observations. Point-wise 95% confidence intervals are not included for clarity.

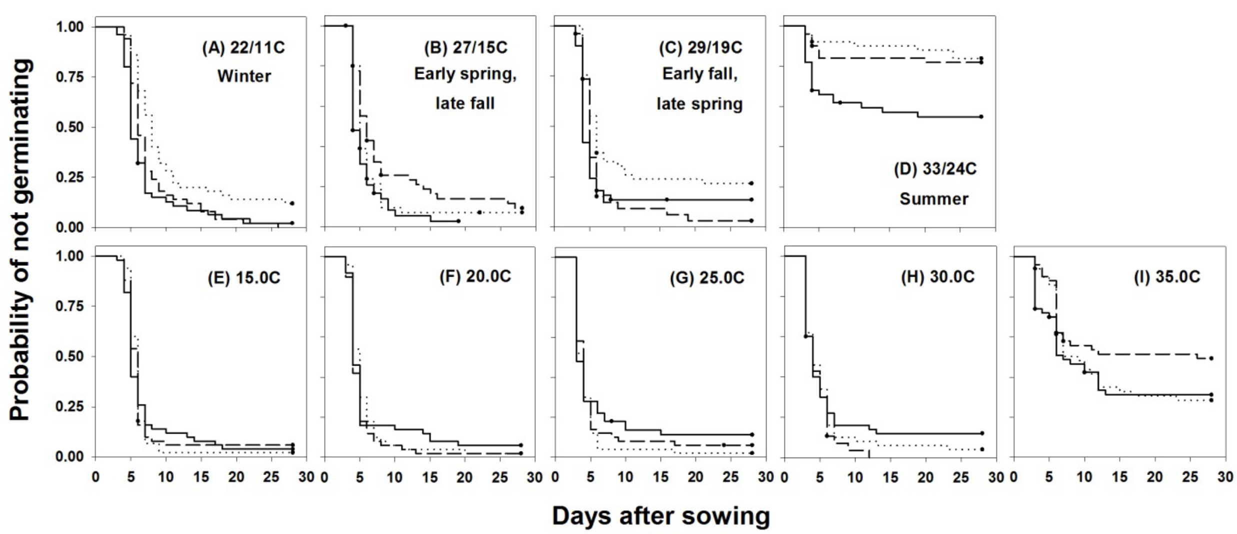
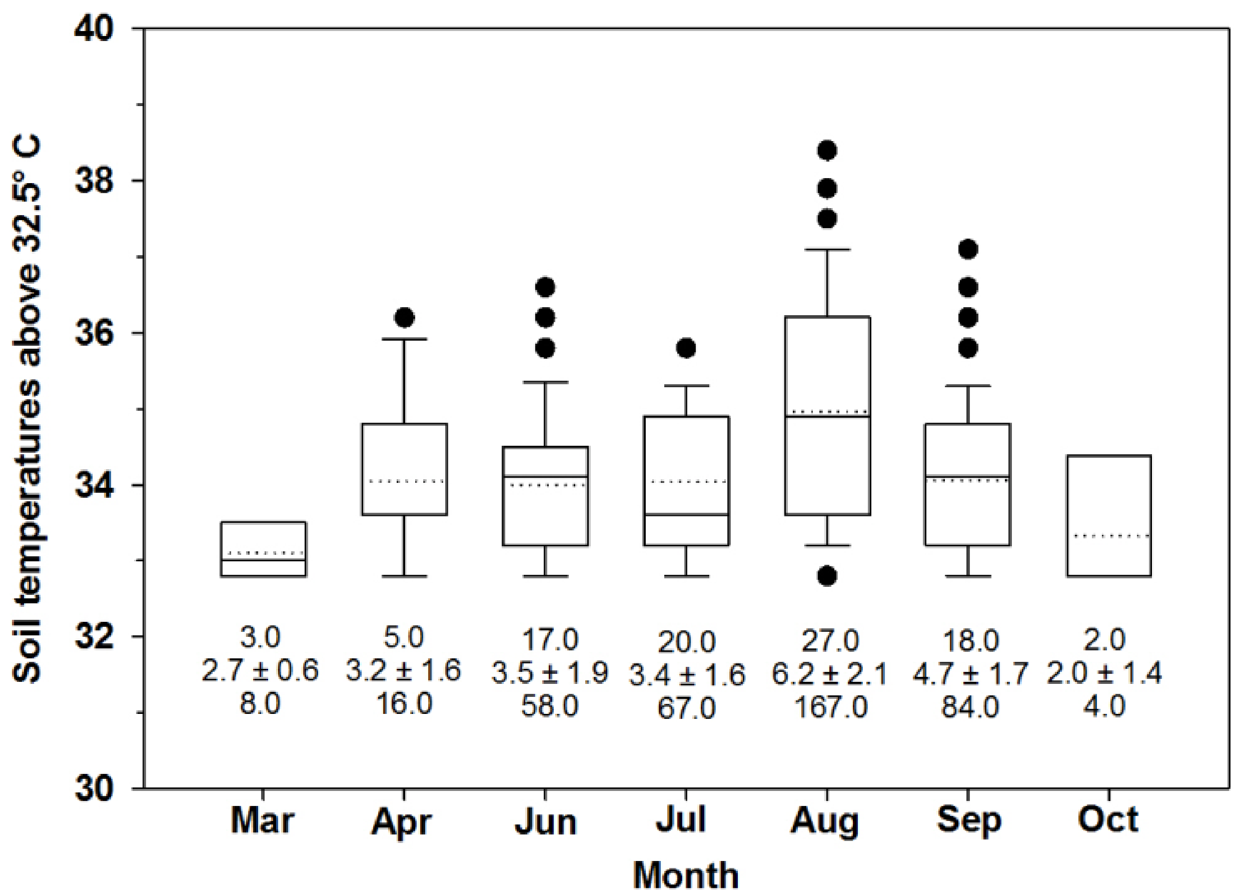


Figure S2. Soil temperature data for germination phenology studies adapted from Pérez *et al.* (2009). The authors conducted phenology studies with quartz sand as a substrate within an outdoor shade house allowing 50% light transmittance. Temperature data collected for the top 2 cm of the soil profile. Dotted lines within box plots represent mean of soil temperatures above 32.5 °C. Values below each box plot indicate the total number of days per month (top row), average hours per day ± standard deviation (middle row), and total hours per month (bottom row) with soil temperatures > 32.5 °C.



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