Supplementary Information

Supplementary Table S1: Number of stress levels in I-E studies.

Study	Number of stress levels (more than the control)	Significant interaction	Number of stressors
(Bijlsma *et al.*, 1999)	1	Dependent on stressor	4
(Keller *et al.*, 2002)	1	Dependent on trait of measure	1
(Armbruster *et al.*, 2000)	1	No	2
(Bijlsma *et al.*, 2000)	1	Yes	2
(Carr *et al.*, 2003)	1	No	1
(Carr and Eubanks, 2002)	1	Yes	1
(Chen, 1993)	1	Yes	1
(Cheptou, Berger, *et al.*, 2000)	2 (continuous)	Dependent on trait of measure	1
(Cheptou, Imbert, *et al.*, 2000)	1	Dependent on trait of measure	1
(Cheptou *et al.*, 2001)	1	Dependent on trait of measure	2
(Dahlgaard and Hoffmann, 2000)	1	Yes	1
(Dahlgaard *et al.*, 1995)	1-2 (continuous)	Dependent on trait of measure	2
(Dahlgaard and Loeschcke, 1997)	1	No	1
(Dudash, 1990)	2 (non-continuous)	Yes	1
(Eckert and Barrett, 1994)	2 (continuous)	Yes	1
(Fowler and Whitlock, 2002)	1	No	2
(Haag *et al.*, 2002)	1	Yes	2
(Haag *et al.*, 2003)	1	No	2
(Hauser and Loeschcke, 1996)	2 (continuous)	Dependent on trait of measure	1
(Henry *et al.*, 2003)	1	No	1
(Ivey *et al.*, 2004)	1	Dependent on the trait of measure	1
(Jiménez *et al.*, 1994)	1	Yes	1
(Johnston, 1992)	1	Dependent on the trait of measure	1
(Joron and Brakefield, 2003)	1	Yes	1
(Koelewijn, 1998)	1	Yes	1
(Kristensen *et al.*,	2 (non-continuous)	Dependent on the	2

2003)		trait of measure	
(Miller, 1994)	2 (non-continuous)	Dependent on the trait of measure	2
(Norman *et al.*, 1995)	1	Dependent on the trait of measure	1
(Pray *et al.*, 1994)	1	Yes	1
(Reed and Bryant, 2001)	1	Yes	2
(Reed *et al.*, 2002)	3 (non-continuous)	Yes	3
(Schemske, 1983)	1	No	1
(Schmitt and Ehrhardt, 1990)	1	Yes	2
(Waller, 1984)	2 (continuous)	No	1
(Wolfe, 1993)	1	Yes	1
(Fox and Reed, 2011)	2 (continuous)	Dependent on the trait of measure	1
(Fox *et al.*, 2010)	3 (continuous)	Yes	1
(Hayes *et al.*, 2005)	1	Yes	1
(Kristensen *et al.*, 2008)	2 (continuous)	Yes	2
(Markert *et al.*, 2010)	1	Yes	1
(Marr *et al.*, 2006)	Uncontrolled continuous natural variable	Dependent on the trait of measure	2
(Nowak *et al.*, 2007)	4 (continuous)	Dependent on the trait of measure	1
(Reed *et al.*, 2007)	Uncontrolled continuous natural variable	Yes	1
(Rowe and Beebee, 2005)	1	Yes	1
(Szulkin and Sheldon, 2007)	Uncontrolled continuous natural variables	1 out of 11	11
(Mikkelsen *et al.*, 2010)	1	Yes	1
(Kristensen *et al.*, 2011)	1	No	1
(Enders and Nunney, 2012)	Uncontrolled continuous natural variable	Yes	1
(Franke and Fischer, 2013)	2	No	1

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Supplementary Text S1: Cooking program in mediaclave.

Ingredients were mixed such that the volume reached 2.5 L. The medium was then heated up to 121 °C (1.2 bar) at which it was maintained for 15 min. Hereafter the mixture was cooled down to 70 °C before the medium was dispensed into the vials. The vials were directly transferred to 4 °C where they were kept until usage.

Supplementary Table S2: Population specific sample size for dry body mass assessments.

Number of flies for which dry body mass was assessed in each replicate population within breeding regime across all media. A group containing less than five was not assessed, and is therefore denoted "0".

Breeding regime	N10										N50						N500		
Replicate population	A	B	C	D	E	F	G	H	I	J	A	B	C	D	E	F	A	B	C
Medium 10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medium 9	0	16	10	5	0	16	14	11	0	9	10	16	16	6	16	16	16	16	16
Medium 8	0	16	16	16	0	16	16	16	10	16	16	16	16	8	16	16	16	15	16
Medium 7	0	16	16	16	0	16	16	16	15	16	16	16	16	8	16	15	16	16	16
Medium 6	0	16	15	16	13	16	16	16	16	16	16	16	15	16	16	16	16	16	16
Medium 5	12	16	16	15	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Medium 4	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Medium 3	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
Medium 2	16	16	16	16	16	16	16	16	16	16	16	16	16	16	15	16	16	16	16
Medium 1	16	16	16	16	15	15	16	16	16	16	16	16	16	16	16	16	16	16	16
Control	16	16	16	16	16	16	16	16	16	15	16	15	16	16	16	16	16	16	16