

Supplemental material

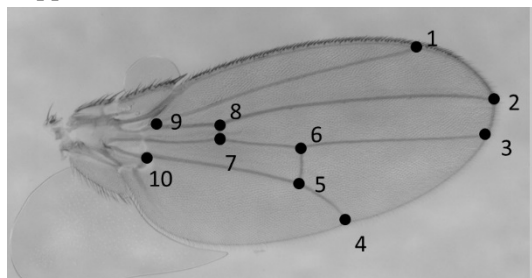


Figure S1. The ten wing landmarks used to calculate wing size and shape.

Table S1. Collection site (collection time), latitude, annual mean temperature (MT), mean of daily low (T_{MIN}) and high (T_{MAX}) temperature (weatherbase.com). The experiment was conducted in November 2010.

Species	Collection site	Latitude	MT	T_{MIN}	T_{MAX}
<i>D. bipectinata</i>	Gordonvale, Queensland, Australia (Feb. 2008)	16.55 S	24.1 ± 2.61	20.1 ± 2.73	29.1 ± 2.33
<i>D. buzzati</i>	Chumbicha, Catamarca, Argentina (2009)	28.26. S	20.3 ± 5.31	13.4 ± 5.82	27.7 ± 4.85
<i>D. immigrans</i>	Aarhus, Denmark (2009)	56.18 N	$8.6 \pm 5.42^*$	$4.0 \pm 4.71^{**}$	10.8 ± 6.94
<i>D. melanogaster</i>	Melbourne, Vic., Australia (Dec. 2007)	37.41 S	14.3 ± 4.16	8.9 ± 3.00	19.0 ± 5.08
<i>D. mojavensis</i>	Anza Borrego, CA, USA	33.13 N	22.6 ± 7.30	14.3 ± 6.68	30.9 ± 7.95

*No data available for January and February. Mean biased upwards.** No data available for December. Mean biased upwards.

Table S2. Results of the analysis comparing egg-to-adult viability of species and developmental temperature. Separate tests conducted for the constant (20, 25 and 30°C) and fluctuating (25°C CT, small FT and large FT) temperature regimes.

	Factor	DF	MS	F
Constant Temperature	Temperature	2	18.65	70.42***
	Species	4	42.83	161.72***
	Temperature \times species	8	5.59	21.13***
Fluctuating temperature	Temperature	2	1.83	6.20**
	Species	4	30.05	101.98***
	Temperature \times species	8	2.07	7.03***

** $P < 0.01$, *** $P < 0.001$

Table S3. Results of the analysis of wing size comparing species, temperatures and sex. Separate tests conducted for the constant (20, 25 and 30°C) and fluctuating (25°C CT, small FT and large FT) temperature regimes.

Constant temperature				Fluctuating temperature		
Factor	DF	MS	F	DF	MS	F
Temperature	2	354.0	21037.6***	2	11.58	1402.6***
Species	4	321.3	38193.4***	4	302.85	36671.9***
Sex	1	88.2	10480.6***	1	90.12	10912.6***
Temperature \times species	7	1.8	211.3***	8	0.70	84.6***
Temperature \times sex	2	0.3	33.6***	2	0.02	2.7
Species \times sex	4	1.4	165.4***	4	1.41	170.4***
Temp. \times species \times sex	7	0.0	0.9	8	0.02	2.4*

* $P < 0.05$, *** $P < 0.001$

Table S4. Results of the analysis of wing aspect ratio comparing species, temperatures and sex. Separate tests conducted for the constant (20, 25 and 30°C) and fluctuating (25°C CT, small FT and large FT) temperature regimes.

Constant temperature				Fluctuating temperature		
Factor	DF	MS	F	DF	MS	F
Temperature	2	11.86	59.0***	2	10.68	52.1***
Species	4	240.42	1195.9***	4	267.62	1306.7***
Sex	1	106.65	530.5***	1	108.04	527.5***
Temperature \times species	7	8.24	41.01***	8	2.20	10.7***
Temperature \times sex	2	2.62	13.1***	2	0.13	0.6
Species \times sex	4	8.72	43.4***	4	9.76	47.7***
Temp. \times species \times sex	7	0.39	1.9	8	0.09	0.4

*** $P < 0.001$