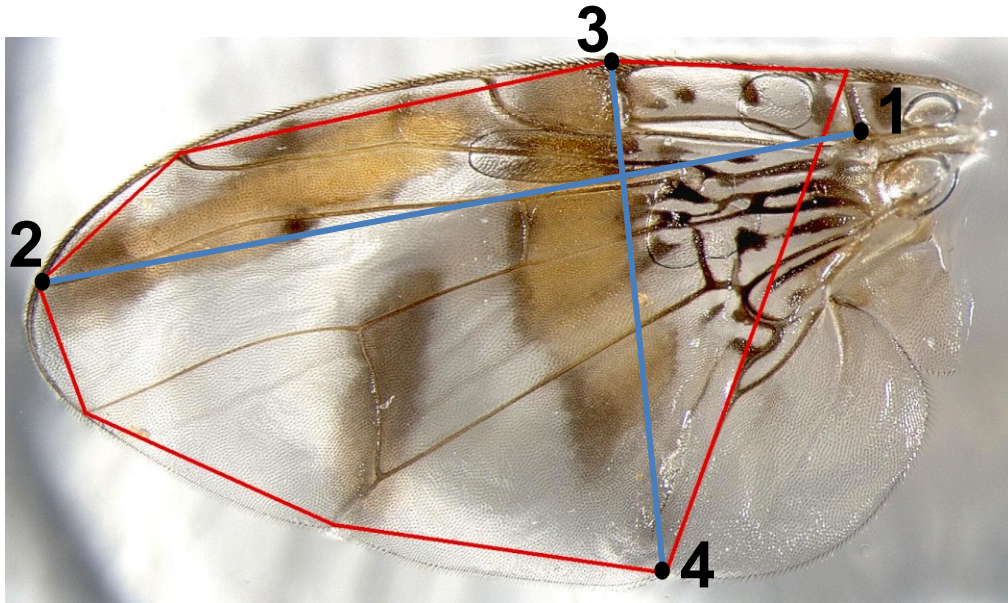**Fig. S1.** Recorded flight scores (0=failure, 1=lift, 2=flight) across the range of test temperatures as a function of M_b (A,B), wing length (C-D), wing width (E-F), wing area (G-H), aspect ratio (I-J) and wing loading (K-L) in *Ceratitis capitata.*

Fig. S2. Landmarks used for measuring the wing length (1 to 2), wing width (3 to 4) and wing area (red lines) of *Ceratitis capitata*. 1=anterio-anal corner of cell c; 2=termination of vein R_{4+5}, inner side of cell R_{2+3}; 3=subcostal break (Scb); 4=A_1+Cu_2 termination; and the red lines run between the anterio-costal corner of cell c, Scb, R_{2+3}, R_{4+5}, M, Cu_1 and A_1+Cu_2 termination landmarks on the edge of the wing. These landmarks were present on wings from all individuals.

Table S1. Generalized linear models (GLZ) showing the effect of (A) Acclimation temperature (T_{acc}) and body mass (M_b); (B) T_{acc} and sex; and C) T_{acc} and flight score (0, 1 or 2, "Score") on aspect ratio (AR) and wing loading (WL) in *Ceratitis capitata* flies (M=males; F=females). *AR* was calculated as $2\log(4R) - \log S$ and *WL* was calculated as $\log M_b - \log R$ (where R is length in mm and S is the wing area in mm^2). Significant effects are highlighted in bold.

	Effect	Sex	DF	Aspect Ratio		Wing Loading	
				Wald χ^2	P value	Wald χ^2	P value
A	Intercept		1	**14482.29**	**<0.0001**	**3513.79**	**<0.0001**
	T_{acc}	M	3	4.34	0.227	**10.38**	**0.016**
	M_b		1	1.02	0.312	**1101.29**	**<0.0001**
	T_{acc} x M_b		3	1.28	0.735	**11.08**	**0.011**
	Intercept		1	**12268.60**	**<0.0001**	**4736.26**	**<0.0001**
	T_{acc}	F	3	3.56	0.313	**13.78**	**0.003**
	M_b		1	0.43	0.511	**1314.45**	**<0.0001**
	T_{acc} x M_b		3	2.94	0.401	**13.64**	**0.003**
B	Intercept		1	**961556.6**	**<0.0001**	**10970.69**	**<0.0001**
	T_{acc}	All	3	**54.3**	**<0.0001**	**14.58**	**0.002**
	Sex		1	**485.3**	**<0.0001**	**24.08**	**<0.0001**
	T_{acc} x Sex		3	4.7	0.195	7.75	0.052
C	Intercept		1	**396639.2**	**<0.0001**	**3536.81**	**<0.0001**
	T_{acc}	M	3	**32.2**	**<0.0001**	**13.87**	**0.003**
	Score		2	1.2	0.561	4.27	0.118
	T_{acc} x Score		6	3.1	0.791	4.15	0.656
	Intercept		1	**289790.0**	**<0.0001**	**3397.90**	**<0.0001**
	T_{acc}	F	3	**18.8**	**<0.001**	4.22	0.239
	Score		2	0.3	0.867	1.66	0.435
	T_{acc} x Score		6	12.1	0.060	6.97	0.323