

Supplementary material

Table S1. Absolute minimum, absolute maximum and percentage change observed in male *P. aegeria* within and across years for each developmental pathway (where; P = pupal hibernating, L = larval hibernating, DE = early summer direct developers and DL = late summer direct developers) for the following flight morphological traits (all log₁₀ transformed); a) forewing surface area and forewing length (years 1990–1995), b) forewing surface area and forewing length (years 1996–1999) and c) total adult body mass and wing loading (years 1995–1999). For each seasonal cohort the largest (L) and smallest (S) percentage changes observed for each trait are indicated (bold type).

a)

Year	Cohort	n	Forewing surface area (cm ²)					Forewing length (cm)				
			min	max	SD	CV	% change	min	max	SD	CV	% change
1990	P	21	2.20	2.34	0.040	0.017	6.0	1.32	1.37	0.016	0.012	3.6
	L	14	2.31	2.38	0.018	0.008	2.9	1.35	1.38	0.009	0.007	2.2
	DE	10	2.24	2.31	0.023	0.010	3.0	1.31	1.35	0.011	0.008	3.0
	DL	17	2.25	2.33	0.021	0.009	3.4 (S)	1.33	1.37	0.009	0.007	2.9 (S)
1991	P	24	2.17	2.32	0.029	0.013	6.5	1.29	1.37	0.015	0.011	5.8
	L					No data collected						
	DE	18	2.27	2.36	0.026	0.011	3.8	1.34	1.37	0.011	0.008	2.2
	DL	59	2.20	2.35	0.028	0.012	6.4	1.16	1.37	0.027	0.020	15.3 (L)
1992	P	27	2.11	2.31	0.044	0.020	8.7 (L)	1.26	1.37	0.024	0.018	8.0 (L)
	L	43	2.22	2.39	0.046	0.019	7.1 (L)	1.30	1.39	0.024	0.017	6.5 (L)
	DE	48	2.17	2.33	0.038	0.017	6.9 (L)	1.28	1.37	0.019	0.014	6.6 (L)
	DL	25	2.21	2.33	0.031	0.013	5.2	1.30	1.38	0.017	0.012	5.8
1993	P	30	2.23	2.34	0.028	0.012	4.7	1.32	1.38	0.015	0.011	4.3
	L	12	2.3	2.35	0.016	0.007	2.1 (S)	1.36	1.38	0.007	0.005	1.4 (S)
	DE	18	2.21	2.32	0.026	0.012	4.7	1.31	1.36	0.011	0.008	3.7
	DL	32	2.19	2.33	0.032	0.014	6.0	1.30	1.36	0.016	0.012	4.4
1995	P	16	2.22	2.29	0.022	0.061	3.1	1.32	1.35	0.010	0.007	2.2 (S)
	L	21	2.27	2.35	0.020	0.009	3.4	1.33	1.37	0.010	0.007	2.9
	DE	16	2.26	2.36	0.030	0.013	4.2	1.33	1.39	0.016	0.012	4.3
	DL	40	2.16	2.33	0.035	0.016	7.3 (L)	1.29	1.36	0.016	0.012	5.1

b)

Year	Cohort	n	Forewing surface area (cm ²)					Forewing length (cm)				
			min	max	SD	CV	% change	min	max	SD	CV	% change
1996	P	15	2.26	2.29	0.021	0.006	3.0 (S)	1.34	1.38	0.009	0.046	2.9
	L	14	2.25	2.32	0.025	0.011	3.0	1.33	1.37	0.013	0.009	2.9
	DE	6	2.27	2.31	0.015	0.007	1.7	1.33	1.36	0.008	0.006	2.2
	DL	48	2.16	2.32	0.034	0.015	6.9	1.30	1.37	0.016	0.012	5.1
1997	P	13	2.20	2.29	0.032	0.014	3.9	1.31	1.36	0.016	0.052	3.7
	L	15	2.19	2.35	0.038	0.017	6.8	1.31	1.37	0.017	0.013	4.4
	DE	5	2.25	2.35	0.038	0.016	4.3	1.33	1.37	0.013	0.009	2.9
	DL	24	2.23	2.31	0.022	0.010	3.5	1.31	1.36	0.011	0.008	3.7
1998	P	27	2.19	2.29	0.026	0.011	4.4	1.31	1.35	0.012	0.009	3.0
	L	7	2.28	2.35	0.022	0.009	3.0	1.35	1.37	0.009	0.007	1.5
	DE	2	2.29	2.32	0.021	0.009	1.3 (S)	1.35	1.37	0.009	0.007	1.5 (S)
	DL	19	2.23	2.31	0.026	0.011	3.5	1.32	1.37	0.013	0.009	3.6
1999	P	10	2.19	2.27	0.028	0.012	3.5	1.31	1.35	0.014	0.010	3.0
	L	19	2.26	2.34	0.023	0.010	3.4	1.33	1.38	0.014	0.011	3.6
	DE	28	2.26	2.34	0.024	0.010	3.4	1.34	1.38	0.010	0.008	2.9
	DL	33	2.22	2.33	0.025	0.011	4.7	1.31	1.37	0.013	0.010	4.4

c)

Year	Cohort	n	Total body mass (mg)					Wing loading				
			min	max	SD	CV	% change	min	max	SD	CV	% change
1995	P	17	1.16	1.46	0.079	0.061	20.5	0.53	0.65	0.029	0.050	18.5 (L)
	L	21	1.17	1.46	0.075	0.057	19.9	0.52	0.63	0.031	0.054	17.5
	DE	16	1.18	1.34	0.037	0.029	11.9	0.52	0.57	0.012	0.023	8.8
	DL	40	1.08	1.29	0.048	0.041	16.3 (S)	0.49	0.56	0.017	0.032	12.5 (S)
1996	P	15	1.18	1.40	0.067	0.009	15.7 (S)	0.52	0.61	0.027	0.046	14.8
	L	14	1.13	1.40	0.076	0.060	19.3	0.50	0.61	0.030	0.054	18.0
	DE	6	1.17	1.25	0.035	0.029	6.4	0.51	0.55	0.014	0.027	7.3
	DL	48	1.03	1.31	0.070	0.059	21.4	0.46	0.57	0.026	0.050	19.3
1997	P	13	1.10	1.39	0.079	0.064	20.9 (L)	0.50	0.61	0.029	0.052	18.0
	L	16	1.04	1.38	0.089	0.074	24.6 (L)	0.46	0.59	0.034	0.064	22.0 (L)
	DE	5	1.18	1.30	0.052	0.041	9.2	0.52	0.57	0.019	0.036	8.8
	DL	24	1.02	1.25	0.051	0.045	18.4	0.46	0.54	0.018	0.036	14.8
1998	P	27	1.08	1.34	0.059	0.050	19.4	0.49	0.60	0.024	0.045	18.3
	L	7	1.23	1.35	0.039	0.030	8.9 (S)	0.53	0.58	0.015	0.028	8.6 (S)
	DE	2	1.21	1.25	0.031	0.025	3.2 (S)	0.53	0.54	0.009	0.016	1.9 (S)
	DL	20	1.03	1.27	0.065	0.057	18.9	0.46	0.55	0.024	0.048	16.4
1999	P	10	1.07	1.27	0.058	0.049	15.7 (S)	0.48	0.56	0.025	0.048	14.3 (S)
	L	19	1.14	1.33	0.050	0.040	14.3	0.50	0.58	0.021	0.038	13.8
	DE	28	1.11	1.28	0.037	0.031	13.3 (L)	0.49	0.55	0.014	0.026	10.9 (L)
	DL	33	0.91	1.28	0.077	0.066	28.9 (L)	0.41	0.56	0.032	0.062	26.8 (L)