

Ecography

ECOG-00064

Johansson, H., Stoks, R., Nilsson-Örtman, V., Ingvarsson, P. K. and Johansson, F. 2012. Large-scale patterns in genetic variation, gene flow and differentiation in five species of European Coenagrionid damselfly provide mixed support for the central-marginal hypothesis. – *Ecography* 35: xxx–xxx.

Supplementary material

Appendix 1

Table A1. Latitude and longitude for all species sampling localities. These localities are plotted on figure 1. Abbreviations are as follows: CARM = *Coenagrion armatum*, CJOH = *C. johanssoni*, CPUL = *C. pulchellum*, CPUE = *C. puella*, CMER = *C. mercuriale*.

Species/locality	Latitude	Longitude	Species/locality	Latitude	Longitude
CPUE01	58.229823	14.657078	CARM06	62.41444	17.272146
CPUE02	58.583765	15.440369	CARM07	58.520116	15.46066
CPUE03	58.440306	15.627136	CARM08	58.296603	14.657135
CPUE04	50.84472	4.661378	CARM09	58.083914	15.446702
CPUE05	50.862092	4.68389	CMER01	49.232402	0.692009
CPUE06	50.841394	5.133053	CMER02	49.088608	0.765411
CPUE10	41.985018	2.099074	CMER03	49.182917	1.659818
CPUE11	42.020688	2.215524	CMER04	41.913056	2.212222
CPUE12	42.00731	2.172836	CMER05	41.698611	1.976111
CJOH01	65.566155	20.630128	CMER06	41.883611	2.170000
CJOH02	65.512881	20.519063	CMER07	38.257633	-2.778683
CJOH03	65.496979	20.495871	CMER08	38.322983	-2.632883
CJOH04	62.232623	17.412851	CMER09	38.423283	-2.66265
CJOH05	62.150598	17.501643	CPUL01	62.520197	17.152107
CJOH06	62.140934	17.489541	CPUL02	62.40965	17.216514
CJOH07	58.698403	16.027973	CPUL03	62.414343	17.271671
CJOH08	58.695125	16.024926	CPUL04	50.926707	4.540000
CJOH09	58.685825	16.035225	CPUL05	51.179478	5.661105
CARM01	65.732175	22.198224	CPUL06	50.948098	5.446386
CARM02	65.646341	21.981748	CPUL07	45.7078	5.428469
CARM03	65.604614	22.131405	CPUL08	45.725614	5.373459
CARM04	62.512661	17.484143	CPUL09	45.709913	5.429697
CARM05	62.468274	17.273088			

Table A2. Global DEST values for all five species. Global DEST and global theta were correlated at $r=0.90$ ($P=0.04$). Pairwise F_{ST} s and pairwise DEST values for each species were highly correlated as show by the correlation coefficient (r) and significant P -values (with the exception of *C. mecuriale*).

Species	Global DEST	r	P -value
<i>C. armatum</i>	0.065	0.966	<0.000
<i>C. johanssoni</i>	0.050	0.971	<0.000
<i>C. puella</i>	0.089	0.961	<0.000
<i>C. pulchellum</i>	0.071	0.976	<0.000
<i>C. mecuriale</i>	0.157	0.392	0.018

Table A3. Bioclimatic variation across the ranges of the five species of damselfly. The upper part of the table shows the loadings on the first principal component (PC1) for each species, and the lower part shows the individual scores for the populations. Population codes are given in figure 1.

Bioclimatic variable	<i>C. armatum</i>	<i>C. johanssoni</i>	<i>C. puella</i>	<i>C. pulchellum</i>	<i>C. mecuriale</i>
Species scores					
Annual mean temperature	0.434	0.414	0.381	-0.425	-0.307
Mean diurnal temperature range	-0.354	-0.384	-0.054	0.004	-0.416
Isothermality	0.438	0.417	0.430	-0.430	-0.209
Temperature seasonality	-0.441	-0.410	-0.444	0.413	-0.422
Temperature annual range	-0.438	-0.409	-0.446	0.375	-0.434
Annual precipitation	0.241	0.227	0.442	-0.371	0.404
Precipitation seasonality	-0.223	-0.347	-0.274	0.430	-0.399
Population scores					
POP01	-2.802	-3.189	-2.911	3.363	1.841
POP02	-2.742	-3.257	-3.253	3.225	1.923
POP03	-2.766	-3.254	-3.234	3.227	1.752
POP04	0.068	0.751	1.834	-1.677	1.358
POP05	-0.021	0.768	1.848	-1.691	1.312
POP06	0.054	0.727	1.959	-1.843	1.521
POP07	2.527	2.485	1.044	-1.540	-3.153
POP08	2.704	2.485	1.299	-1.574	-3.116
POP09	2.977	2.485	1.414	-1.490	-3.438