

Oliver Schweiger, Josef Settele, Otakar Kudrna, Stefan Klotz, and Ingolf Kühn. 2008. Climate change can cause spatial mismatch of trophically interacting species. *Ecology* 89:3472–3479.

Appendix A. A map showing current (1971–2000) distribution of *Polygonum bistorta* taken from Atlas Florae Europaeae (Lathi and Lampinen 1999) and downscaled projection of current distribution.

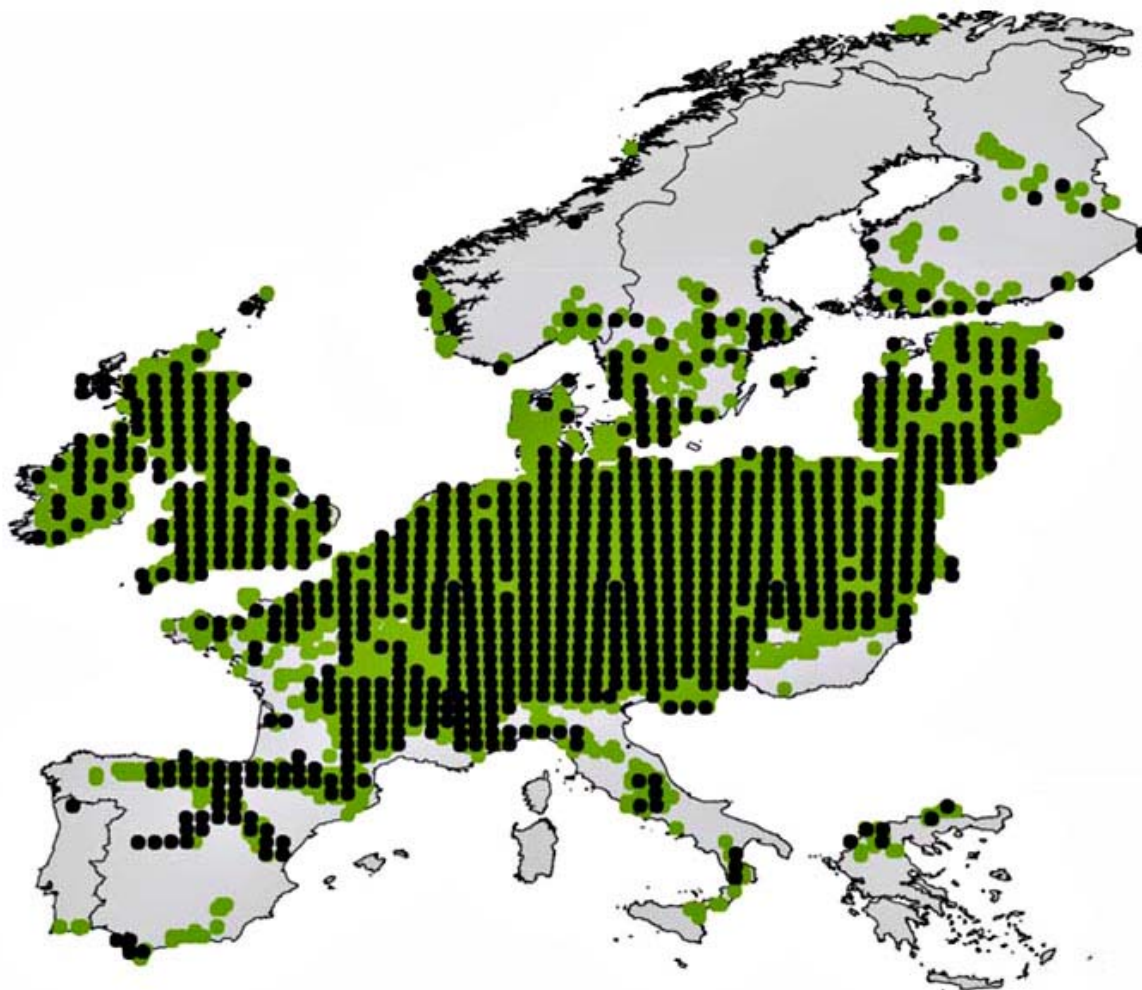


FIG. A1. Current (1971–2000) distribution of *Polygonum bistorta* taken from Atlas Florae Europaeae (AFE; Lathi and Lampinen 1999) (black circles) and downscaled projection of current distribution (green). Model accuracy was high (AUC = 0.94 for external evaluation at the AFE grid resolution [ $50 \times 50 \text{ km}^2$ ]; and AUC = 0.85 for external evaluation when projections were made for a 10' grid. Here at least one 10' grid cell that falls into an AFE grid cell had to be predicted to be suitable when the AFE grid cell is denoted as suitable while all 10' grid cells had to be predicted as unsuitable otherwise).

#### LITERATURE CITED

Lathi, T., and R. Lampinen. 1999. From dot maps to bitmaps: Atlas Florae Europaeae goes digital. *Acta Botanica Fennica* 162:5–9.

Oliver Schweiger, Josef Settele, Otakar Kudrna, Stefan Klotz, and Ingolf Kühn. 2008. Climate change can cause spatial mismatch of trophically interacting species. *Ecology* 89:3472–3479.

Appendix B. A map showing current (1971–2000) distribution of *Boloria titania*, modified after the Distribution Atlas of European Butterflies (Kudrna 2002) to match the 10' grid scale, and modeled niche spaces of *B. titania* and *Polygonum bistorta*.

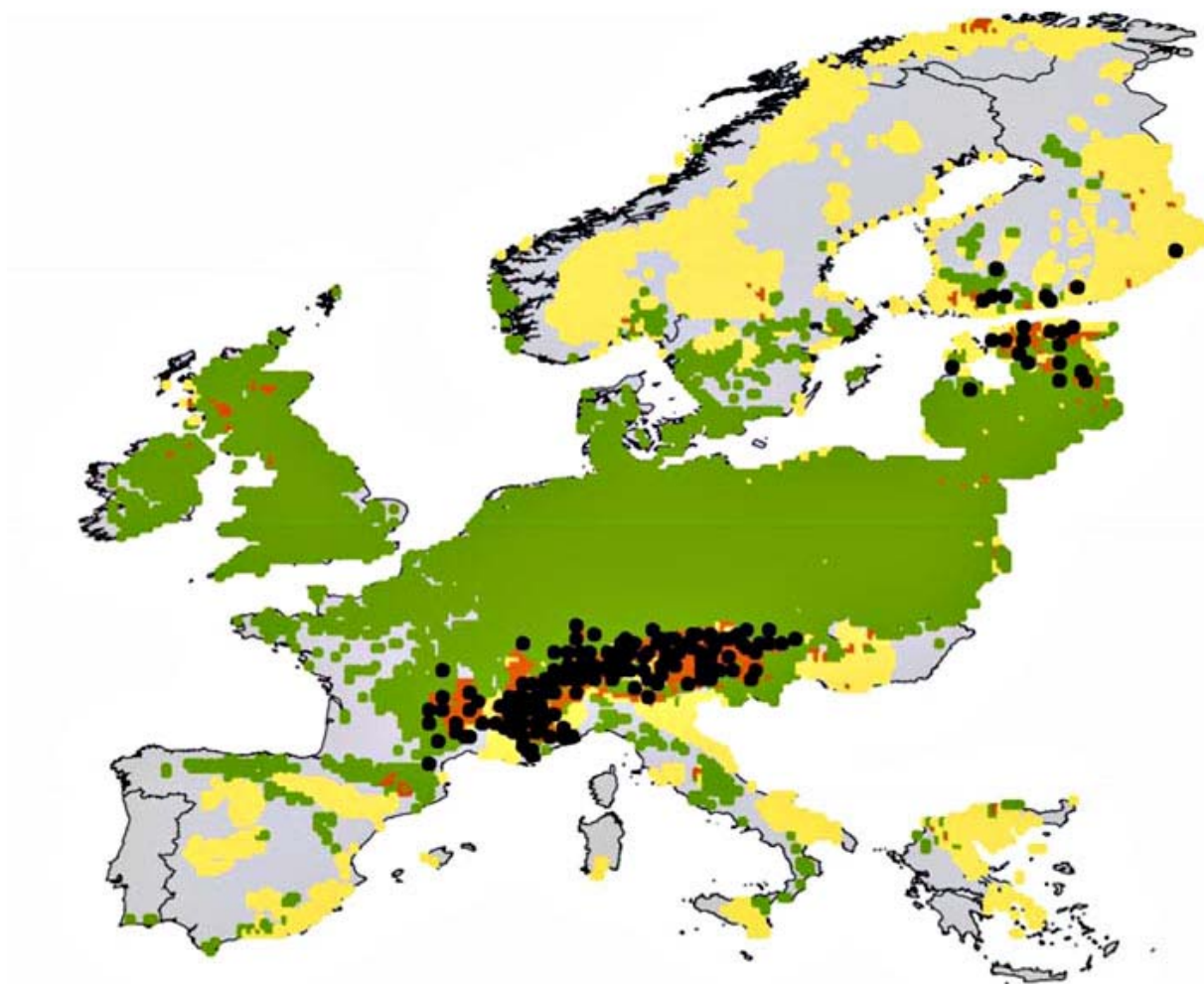


FIG. B1. Current (1971–2000) distribution of *Boloria titania* (black circles), modified after the Distribution Atlas of European Butterflies (Kudrna 2002) to match the 10' grid scale, and modeled niche spaces of *B. titania* and *Polygonum bistorta*. Green, niche space of *P. bistorta*; yellow, niche space of *B. titania*; brown, overlap of both (projected realized niche space of *B. titania*). Model accuracy for *B. titania* was high (AUC = 0.93) and can be visualized by the overlap of current distribution and projected realized niche space (compare Fig. 1 in main text).

#### LITERATURE CITED

Kudrna O. 2002. The distribution atlas of European butterflies. Apollo Books, Stenstrup, Denmark.

**Oliver Schweiger, Josef Settele, Otakar Kudrna, Stefan Klotz, and Ingolf Kühn. 2008. Climate change can cause spatial mismatch of trophically interacting species. *Ecology* 89:3472–3479.**

Appendix C (Table C1). Projected changes in niche space of *Polygonum bistorta* and *Boloria titania* for moderate, intermediate, and maximum global-change scenarios for 2080 (SEDG, BAMBU, GRAS; Spangenberg 2007).

	Current	Moderate (SEDG)	Intermediate (BAMBU)	Maximum (GRAS)
<i>Polygonum bistorta</i>				
Area (number of grid cells)	8982	8341	6568	4279
Unlimited dispersal (% change)	0	-7.1	-26.9	-52.4
New area (% of total area)	0	46.2	49.6	58.7
No dispersal (% change)	0	-50.0	-63.2	-80.3
<i>Boloria titania</i> unconstrained by <i>Polygonum bistorta</i>				
Area (number of grid cells)	4027	7963	7824	8148
Unlimited dispersal (% change)	0	+97.7	+94.3	+102.3
New area (% of total area)	0	68.3	68.9	71.9
No dispersal (% change)	0	-37.3	-39.6	-43.2
<i>Boloria titania</i> constrained by <i>Polygonum bistorta</i> , full dispersal				
Area (number of grid cells)	874	3127	2379	1959
Unlimited dispersal (% change)	0	+257.8	+172.2	+124.1
New area (% of total area)	0	94.1	93.7	94.7
Realized niche (%)	21.70	39.3	30.4	24.0
<i>Boloria titania</i> constrained by <i>Polygonum bistorta</i> , without dispersal				
Area (number of grid cells)	874	417	339	215
Unlimited dispersal (% change)	0	-52.3	-61.2	-75.4
New area (% of total area)	0	55.4	55.5	51.6
Realized niche (%)	21.70	5.2	4.3	2.6
No dispersal (% change)	0	-78.7	-82.7	-88.1
Realized niche (%)	21.70	2.3	1.9	1.3

LITERATURE CITED

Spangenberg, J. H. 2007. Integrated scenarios for assessing biodiversity risks. *Sustainable Development* 15:343–356.