

Project Partners

UFZ	Helmholtz-Centre for Environmental Research (Coordinator; Germany)
UOxford	University of Oxford (UK)
MNHN	Muséum National d'Histoire Naturelle (France)
ULund	Lund University (Sweden)
NERC	NERC Centre for Ecology & Hydrology (UK)
UTurin	Università degli Studi di Torino (Italy)
UJAG	Jagiellonian University (Poland)
Pensoft	Pensoft Publisher Ltd. (Bulgaria)
S4you	science4you (Germany)
EIA	Pfeifer Environmental Impact Assessment (Germany)
UBourne	Bournemouth University (UK)
SWT	Somerset Wildlife Trust (UK)
NT	National Trust (UK)
BCE	Stichting Butterfly Conservation Europe (The Netherlands)
SIB-RAS	Institute of Cytology and Genetics SIB RAS (Russia)

Project start: 1st of July 2009

Key Reference Publications:

Settele J, Kühn E (2009). Insect Conservation. Science 325, 41-42.;

Thomas JA, Simcox DJ, Clarke RT (2009). Successful Conservation of a Threatened *Maculinea* Butterfly. Science 325, 80-83.

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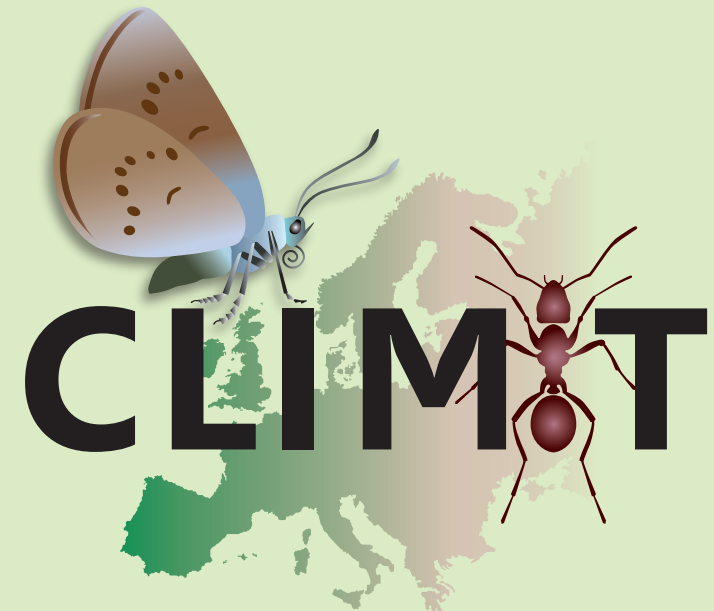
CLIMIT aims to assess the combined impacts of human-induced changes in climate and habitat (area, isolation, patch quality) on some of Europe's most specialised and threatened grassland insects that depend on ants (myrmecophiles) by studying their local adaptations, changing niches and different needs across a gradient of local climates from the Mediterranean to the North/Baltic seas.

We will compare the fates of species that have either mutualistic or antagonistic relationships with ants under different scenarios of climate and land use change, as well as studying their potential to evolve adaptations to new environments.

Finally CLIMIT will test current ideas for adaptive management to conserve myrmecophiles on existing and new sites across landscapes, and will model the potential for the mitigation of global change impacts.



Photos have been kindly provided by John Breen, Peter Ginzinger and Jeremy Thomas

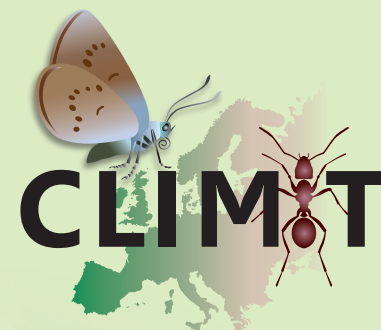


CLimate change impacts on **I**nsects
and their **MIT**igation



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project BiodivERsA**

<http://www.eurobiodiversa.org>



Project main tasks

- Quantify intra-population variation in population ecology across current European landscapes and climates
- Quantify adaptations to local communities and current environments
- Assess impacts under future scenarios of climate and land use change on current European races of insects and ecosystems
- Study the potential of myrmecophiles to evolve adaptations to new environments
- Test current ideas for management to conserve myrmecophiles on large-scale sites and landscapes; model potential for mitigation under global change
- Translate the results into policy and management recommendations

Study species

Study species	Foodplant	Ant association	Parasitoid
<i>Polyommatus coridon</i> (Lepidoptera)	100% phytophagous; <i>Hippocrepis comosa</i>	mutualist with <i>Lasius</i> , <i>Myrmica</i> in late instars	Unspecific
<i>P. bellargus</i> (Lepidoptera)	100% phytophagous; <i>Hippocrepis comosa</i>	mutualist with <i>Lasius</i> , <i>Myrmica</i> in late instars	Unspecific
<i>Plebejus argus</i> (Lepidoptera)	100% phytophagous; multiphagous	obligate mutualist with <i>Lasius niger</i> in all stages	3 near-specific spp
<i>Maculinea arion</i> (Lepidoptera)	2% food: <i>Thymus</i> (cool sites); <i>Origanum</i> (warm)	last instar obligate predatory social parasite of <i>M. sabuleti</i>	<i>Neotypus coreensis</i>
<i>Maculinea teleius</i> (Lepidoptera)	5% <i>Sanguisorba officinalis</i>	last instar obligate predatory social parasite of <i>M. scabrinodis</i>	<i>N. pusillus</i> ? cryptic spp?
<i>Maculinea nausithous</i> (Lepidoptera)	2% <i>Sanguisorba officinalis</i>	last instar obligate predatory social parasite of <i>M. rubra</i>	<i>N. pusillus</i> 2 races
<i>Maculinea alcon</i> (Lepidoptera)	2% <i>Gentiana pneumonanthe</i>	last instar obligate cuckoo social parasite: <i>M. rubra</i> , <i>M. ruginodis</i> or <i>M. scabrinodis</i>	<i>Ichneumon eumerus</i>
<i>Maculinea rebeli</i> (Lepidoptera)	2% <i>Gentiana cruciata</i>	last instar obligate cuckoo social parasite of <i>M. schencki</i> , <i>M. sabuleti</i> or <i>M. sulcinodis</i>	<i>I. eumerus</i> probable new cryptic spp
<i>Microdon mutabilis</i> (Diptera)	none	100% predatory social parasite of <i>Formica lemani</i> in egg-pupal stages	Unknown
<i>Microdon myrmicae</i> (Diptera)	none	100% predatory social parasite of <i>Myrmica scabrinodis</i> in egg-pupal stages	Unknown