

Adaptation to a changing world: How wild bees cope with climate change.

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The current climate change affects living systems, especially by inducing shifts in species phenology (the time of the year at which a seasonal activity is performed). First fragmented available results strongly suggest that the phenology of wild bees (Hymenoptera : Apoidea) is changing. However, this is still poorly understood since few researches have focused on this phenomenon. According to the key role of wild bees in ecosystem service, the understanding of their phenology changes is thus a biological conservation priority.

In this project, starting in January 2015, we will perform the first comprehensive study of the apoïds (i.e. wild bees) phenological shifts in Europe since the 19th Century. Our main goal is to determine if the phenology shifts are triggered by the meteorological parameters and/or species life history traits by comparative statistical and modeling analyses. In this study, we will also investigate the interpopulational and intergenerational adaptations to climate change in a model species (*Bombus terrestris*) through comparative bioassays. These bioassays will focus on the effect of temperature on diapause termination in this species. It will bring more understanding on how this model species adapts to the changes in climate through adaptation and phenotypic plasticity.

This research is innovative as it focuses on a topic of great ecological importance but still very scarcely studied. Thus, this work will be pioneering and it will bring to light results with significant applications in conservation ecology as well as for the study of ecosystem services and climate change.