

Master thesis FiBL: climate change & butterflies

Titel	Quantifying climate change impacts on butterfly species in the Swiss agricultural landscape. Do you want to identify winners and losers?
Problemstellung	<p>Climate change is supposed to be a major driver of future biodiversity loss (Maclean and Wilson 2011; Thomas et al. 2004). A temperature related shift in the distribution and abundance of species has already been documented for plant and animal populations (Parmesan and Yohe 2003; Root et al. 2003; Walther et al. 2002). It is known that response of species communities to climate warming varies by taxon and with altitude (Roth et al. 2014). Species' traits determine the response to climate change (Diamond et al. 2011). Using climate change projections we can assess the potential future extinction risk of plants and animals of high conservation concern. Different impact models have been used to predict the response of species to climate change (Hill and Thomson 2015).</p> <p>Climate issues are relevant for decisions of government, political and business sectors and society. Therefore we need information and data on the climate of the past, present and future, as well as its consequences (Wilby et al. 2009). This is exactly the aim of the National Center for Climate Services established in Switzerland in 2015 (NCCS, www.nccs.ch).</p> <p>The aim of this master thesis is to project the potential distribution and shifts in butterfly phenology in Switzerland. For the suggested modelling approach the newest climate scenarios in high temporal and spatial resolution for Switzerland will be considered (CH2018 2018). The results will support the development of specific adaptation measures for plant species at risk under future climate conditions.</p>
Vorgehen/Methode	Compiling butterfly distribution and abundance data and using climate scenarios for Switzerland.

Developing impact models: simple correlative approaches, bioclimatic risk analyses or complex species distribution models.

Optional: linking butterfly and fodder plant distribution models.

Assessing climate sensitivity of butterfly species to projected climate change.

Identifying climate change adaptation measures for relevant butterfly species of the Swiss agricultural landscape.

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Literatur

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