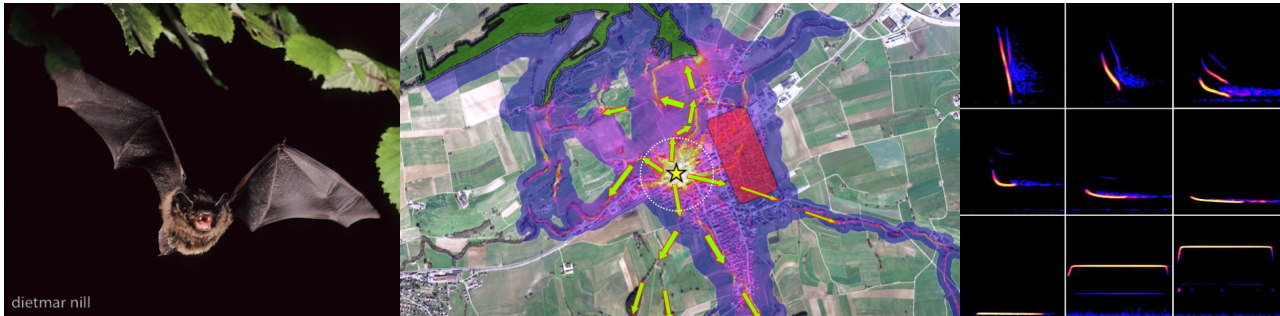


Master thesis project in Conservation Biology of Bats



Challenging the predictive power of flight corridor models for bats

Bats rely in their life cycle on three core locations: roosts, foraging areas and the inter-connecting habitat, each offering unique approaches for conservation. While roosts of many bat species are well known and protected in Switzerland, locations of flight corridors and foraging areas are far less established. In this project the flight corridors of bats will be targeted.

Preliminary research at WSL has produced model predictions for flight corridors of bats around six roosts each of Greater Mouse-eared Bats and Lesser Horseshoe Bats. Subsequently a strong demand from conservation stakeholders for applying such models to all known bat roosts of priority species emerged. Prior to a wide implementation, a control study should validate the model predictions around areas of previously untested roosts.

In an initial step, several candidate roosts throughout Switzerland will be selected and corridor models applied to the surrounding landscape. In a stratified random design test locations for recording bat activity will then be selected around each of the chosen roosts. Automated acoustic recorders will be deployed to detect bat presences. Activity levels of the focus species leaving their roosts will then be matched against the model predictions. The results will finally help to advance the modeling of flight corridors of bats.

The thesis will be part of a larger implementation project of WSL and partners on flight corridors of bats from roosts to foraging areas. The results will allow to better quantify the quality of the models and optimize them for applying in a larger scale on Swiss bat roots.

The master candidate will sample the vicinity of roosts throughout the summer (2019 or 2020) with standardized ultrasound recorders. Analyses will comprise species identification of the acoustic recordings, GIS investigations on the distribution of the activity and R analyses on the fit of existing models. The student should strive for a scientific publication of the thesis' results.

Transport and housing will be compensated for during the field season.

Prerequisites: organizing skills; driving license and experience; willing to travel and to work at night; experience in english writing; knowledgeable in GIS-techniques and R.

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