

## MASSIVE BAT MIGRATION ACROSS THE ALPS: IMPLICATIONS FOR WIND ENERGY DEVELOPMENT [O]

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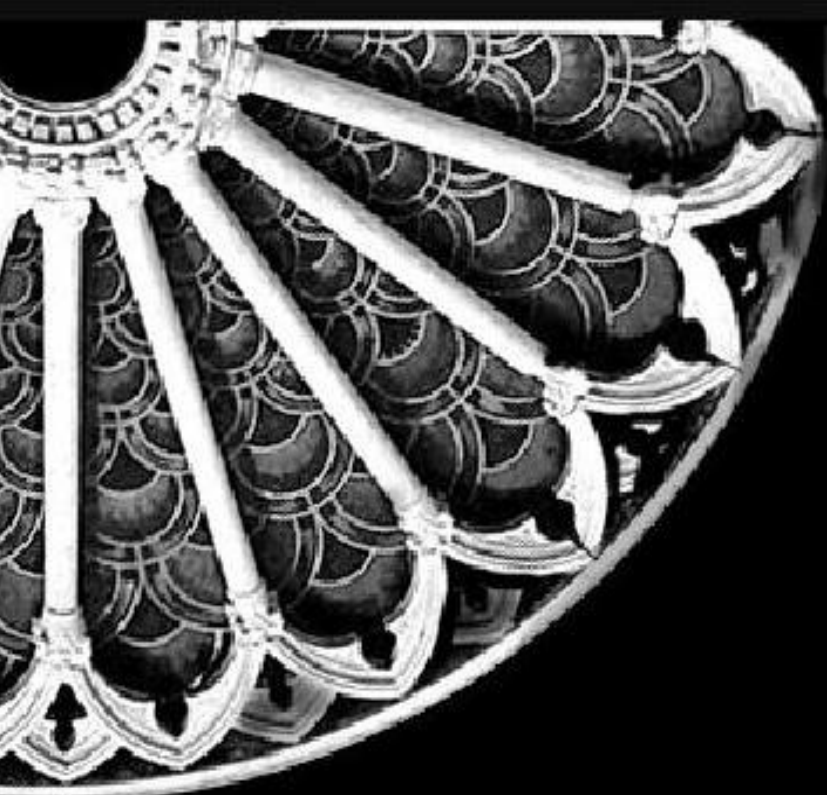
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For the last two decades, the installation of wind parks in Europe has been accelerated to reach the ambitious targets of the energy turnaround and to combat climate change. Especially hill tops, ridges and alpine passes benefit from continuous winds. Therefore, remote sites throughout the European Alps are increasingly proposed for wind parks in order to harbour the extensive winds, and to concurrently avoid conflicts near human settlements and restricted protected areas in the lowlands. It is well known that myriads of migrating birds regularly cross the Alps in spring and autumn. Many discoveries of marked bats point to the fact that they cross Europe, but the phenology and flight routes of migrating bats are still obscure. In this study, within the framework of international cooperation throughout the European Alps, we aimed to undertake long-term observations of bats to better understand the seasonal occurrence of local and migrating bat species.

We conducted continuous acoustic monitoring using broadband ultrasound recorders on towers, in the nacelle of wind turbines and on the ground, from spring to autumn. A dozen recording sites were distributed across the Alps in Austria, Germany and Switzerland, including control sites in the lowlands.

We found a regular presence of bats at sites up to 2,500 m a.s.l., with surprisingly high bat species richness at many alpine sites, including both local and migratory species. While there was a high variability between the sites, we recorded peaks with massive migration, especially during a few weeks in autumn. At some valleys and passes in the Alps hundreds of bat sequences were recorded in single nights, indicating that many thousands of bats were crossing the perimeter of a wind park in the course of the season.

Our results clearly demonstrate that the Alps are regularly used for foraging by local bats and as seasonal routes through Europe by migrating bats. We strongly recommend to carefully monitor planned wind energy sites in the Alps, including those in valleys and on alpine passes, and to implement appropriate mitigation measures to protect the threatened bat species.



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BOOK OF ABSTRACTS