

Name of research institute or organization:

Peter E. Zingg

Title of project:

Activity and migration of bats at Jungfrauoch

Project leader and team:

Dr. Peter E. Zingg, project leader
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Project description:

It is known that certain populations of specific European bat species migrate seasonally in SW (autumn) and NE (spring) direction. So far, studies about bat migration in the European Alps took place at altitudes below 3000 m.a.s.l. In an initial exploratory study we collected information about bat activity at the Jungfrauoch. Additionally, we got first hints about which species do cross the Jungfrauoch in which season, under which meteorological conditions and around what night-time.

Flying bats use an echolocation system to orientate themselves, to catch food and for communication. These calls are predominantly in the ultrasound range. To detect flying bats at Jungfrauoch, we exposed an ultrasound datalogger on the glacier passage at Jungfrauoch at 3480 m.a.s.l. in nights with an evening air temperature above 0°C (due to the limited energy budgets of bats, we assumed that the probability to encounter flying bats is greater at higher air temperatures and at an obstacle free passage). The about 4300 files with recorded ultrasound were transferred to a well-structured database and scanned for bat calls, mainly manually. In spring 4% and in autumn 2% of the files contained bat calls; the rest were files with wind and other noise. In further steps of the workflow, criteria for the taxonomic assignments have to be fixed, so that the bat calls can later be classified to an appropriate level (species, species-complex or genus). Identification of bat species by their calls is difficult and in many cases calls can only be assigned to a species-complex or to a genus.

In 33% of the study nights in spring (n=15) and 32% of the study nights in autumn (n=22) we recorded bat calls. The analyses not finished to this day yet, we identified three to four different bat species in springtime and seven to eight bat species in autumn.

Various facts are remarkable such as the “climbing” of bats to 3480 m.a.s.l. at the Jungfrauoch, the high number of different species that cross over this altitude, at least in autumn, and that the bats have to cover a distance of approximately 22 kilometers in the south of the Jungfrauoch, an area only covered with rocks and glaciers (along the great Aletsch glacier or the Lötshental).

Key words:

Bats, chiroptera, migration, high altitude

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