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Pre-construction study:
Recording Bats in heights with collision risk using a helium balloon and an automated sytem

(ALBRECHT, K. & CH. GRÜNFELDER)

For the site selection of wind power plants it is decisive from a species protection point of view whether the risk of bat fatalities will increase significantly. A substantial ban by Art. 12 (1) lit. a council directive 92/43/EEC cannot even be avoided implementing CEF measures. Numerous investigations show that bats are active in the height area of rotor blades and might be killed. But so far only few authors have investigated bat activities in different heights.

The study presented has been carried out over two nights using a helium balloon. Automatically recording „batcorders" registered the bat calls syncronously in three different heights. The results show that bat activities in the height of the rotor blades significantly differ from activities close to the ground or even to the height of the forest canopy. The species mapped on the height of the rotor blades (Pipistrellus pipistrellus, P. nathusii, P. pygmaeus, Vespertilio murinus) usually feed in the open air space.

study site

setting up the ballon

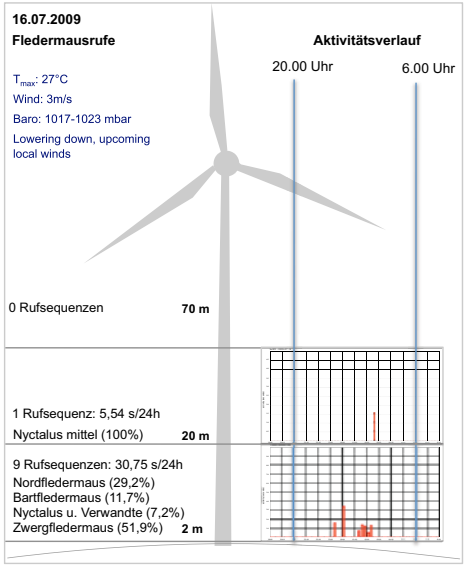
mounting the 1st batcorder

the second follows

keeping an eye ..

Bat recordings of two nights:

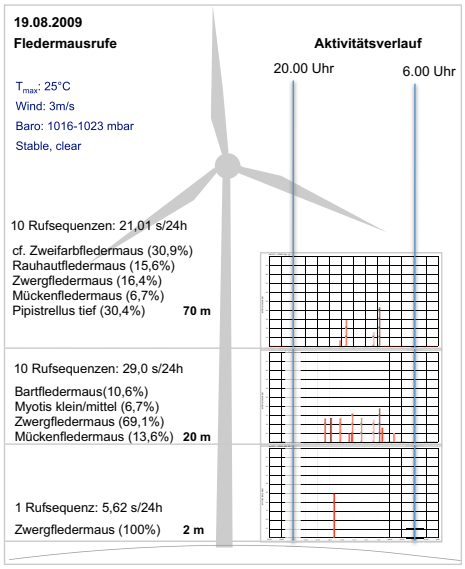
Related to altitude



0 calls

1 call of
-Parti-coloured bat, Leisler´s bat or serotine bat

9 calls of
-Northern bat (29%)
-Brandt´s bat or whiskered bat (11,7%)
-Calls similar to nyctalus (7,2%)
-Common pipistrelle (51,9%)



10 calls of
-Parti-coloured bat (30,9%)
-Nathusius´pipistrelle (15,9%)
-Common pipistrelle (16,4%)
-Soprano pipistrelle (6,7%)
-Some low calling pipistrelle (30,4%)

10 calls of
-Brandt´s bat or whiskered bat (10,6%)
-Undef. *Myotis* spec. (6,7%)
-Common pipistrelle (69,1%)
-Soprano pipistrelle (13,6%)

1 call of
-Common pipistrelle

What do we see?

- There is bat activity in the height with collision risk over 70 m above ground level
- Bat activity may be quite unequal in different altitudes at the same time
- Bat activity might differ completely in altitude and species evidence on two nights – even having similar wheather conditions

What do we learn?

- Recordings from ground level are not trustful for evaluation of collision risk of bats with wind energy plants, especially in woodlands
- It ist possible to prevent bats from collision post-construction by shut-down algorithms below wind speeds of 5 or 5.5 m/s, but in the midlands with low average speeds that means a significant loss of power
- Recordings in altitudes over 70-100m above ground level therefore are substantial to site selection
- Using a helium ballon is an advisable method for pre-construction studies, but still time-consuming an quite expensive
- So there are needs to find easy handling methods for longterm-monitoring prior to construction of a wind farm
- It isdife crucial to investigate over several nights during the known period of bat fatalities (July-September), because even slight differences in wheather conditions or other factors could cause completely different evidence of bat activity.
- According to RODRIGUES ET AL. (EUROBATS 2008) we recommend at least 8 nights

- Full paper: ALBRECHT & GRÜNFELDER (2011): Fledermäuse für die Standortplanung von Windenergieanlagen erfassen, Naturschutz und Landschaftsplanung 43 (1), 2011, 005-014, ISSN 0940-6808