Integration of Bat Conservation Concerns in the Development of Wind Energy Projects in Switzerland

H. Krättli[1], C. Brossard[2], P. Moeschler[1], F. Bontadina[3]

[1]Swiss Coordination centre for bat protection, Zurich & Geneva, hubert.kraettli@zoo.ch, pascal.moeschler@ville-ge.ch
[2]Swiss Coordination centre for bat protection, Geneva, & Bureau Natura Biologie appliqué, Les Reussilles, christophe.brossard@bureau-natura.ch
[3]SWILD, Urban Ecology & Wildlife Research, Zurich, fabio.bontadina@swild.ch

Frame Conditions

- Promotion of wind energy projects according to the Swiss exit strategy from nuclear and fossil power
- Mandate to the *Swiss Coordination Centre for Bat Protection* to elaborate national recommendations to integrate bat conservation concerns in the development of wind energy projects enabling the realisation of wind turbines.

Results

National Strategy referring to the implementation of bat conservation in the 3 important phases of a wind energy project:

Phase of Wind Energy Project	Actions by *Swiss Coordination Centre for Bat Protection* / specialized environmental consultancies	
Feasibility Study	**Preliminary Check**	• Evaluation of potential impacts according to existing database knowledge and attractiveness of the site for bats as hunting habitat and migration corridor • According to standardized protocol • Pragmatic, fast and cheap • Outcome: recommendation of potential impact according to four possible categories between „Go“ and „No Go“ for the attention of the planner • Basis for specification in Environmental Impact Assessment EIA ► *Operated by Swiss Coordination Centre for Bat Protection* ► *Approximately 150 standardized preliminary checks so far*
Planning Phase	**Investigations connected to obligatory Environmental Impact Assessment EIA**	• Investigations according Preliminary Check & site specific requirements Aim: identifications of potential, site specific conflicts: - systematic permanent acoustic measurements in the height - Additional investigations on the ground (acoustic, nets, roost searches) • Possible outcome being part of the Environmental Impact Report EIR - Avoidance: displacement of turbines - Diminuition: site specific stopping algorithm - Compensation: suitable measures - Necessity and extent of monitoring as success of control ► *Operated by specialized environmental consultancies*
Building & Operating Phase	**Success Control**	• Implementation control (building phase): - Implementation of stopping algorithm - Implementation of compensation measures • Efficiency Control (operating phase): - Verification of efficiency of stopping algorithm (acoustic or carcass searches) - Adaption of stopping algorithm if necessary ► *Operated by specialized environmental consultancies*

Impact categories according to standardized Preliminary Check

GO: Site without special bat activities or little known
No or little conflicts present or expected
moderate investigations required

GO: Site with special bat activities
moderate conflicts present or expected
large investigations required

GO: Site of regional importance
considerable conflicts present or expected
intensive investigations required

NO GO: Site of national importance
heavy & complex conflicts present
conflicts inevitable

Unsolved problems:

- Consideration of accumulative effects:
  How to implement the fact that more wind energy projects cause more dead bats?
- How to ensure quality control of EIA if performed by unspecialised environmental consultancies?

Current challenges:

- Improvement of simple, fixed stopping algorithm by complex, multivariate models
- Implementation of real-time stopping mechanisms including:
  - real-time acoustic bat detection
  - real-time radar based bat detection

Stakeholders