

Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

Project level

Conclusion

## Planner´s Dilemma

# How to handle birds and bats in the planning process of wind farms – examples, problems and possible solutions from Germany



Großer Abendsegler  
Foto: Nyctalus noctula.jpg  
Lizenz: GFDL & CC ShareAlike 2.0  
Urheber: Mnolf



Structure

**Introduction**

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

Project level

Conclusion

- European and national nature conservation legislation demand a thorough consideration of birds and bats in the course of locating, planning and realization of sites for wind energy turbines.
- There are still many debates and uncertainties how to find suitable locations for wind farms and how to deal with possible impacts on birds and bats
- Causes:
  - Ø Gaps in scientific knowledge about impacts
  - Ø Lack of standardized and clearly impact-focused planning approaches

**Aim of the talk: to give some suggestions how to adequately integrate the bird and bat issues into the planning process**



Structure

Introduction

**Collision risk**

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

Project level

Conclusion



Species mainly affected:  
Raptors and gulls



Red Kite



Herring Gull



Structure

Introduction

**Collision risk**

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

Project level

Conclusion



Raptors and Gulls comprise about 65% of all registered collision victims in Europe

Data base Tobias Dürr; 10 May 2012																
Species	A T	BE	BG	CZ	D	DK	ESP	FR	GB	GR	NL	NOR	P	PL	S	Σ
Griffon Vulture			1				1877			4						1882
White-Tailed Eagle					69						1	39		4	12	125
Red Kite					168	1	13	2	3						12	199
Common Buzzard					198		21	2		3					3	167
Kestrel	1	5			46		220	13			4		8	2		299
Black Headed Gull		328			69		2	33	9		29			1		471
Herring Gull		797			42		1		36		8				2	886
Lesser Black Backed Gull		200			4		4		1		1					210
<b>Total</b>	<b>1</b>	<b>1330</b>	<b>1</b>	<b>0</b>	<b>596</b>	<b>1</b>	<b>2138</b>	<b>50</b>	<b>49</b>	<b>7</b>	<b>43</b>	<b>39</b>	<b>8</b>	<b>7</b>	<b>29</b>	<b>4299</b>
<b>All species</b>	<b>21</b>	<b>1757</b>	<b>4</b>	<b>1</b>	<b>1490</b>	<b>5</b>	<b>3891</b>	<b>184</b>	<b>130</b>	<b>98</b>	<b>148</b>	<b>126</b>	<b>8</b>	<b>67</b>	<b>112</b>	<b>8043</b>



Structure

Introduction

Collision risk

**Disturbance and Displacement**

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

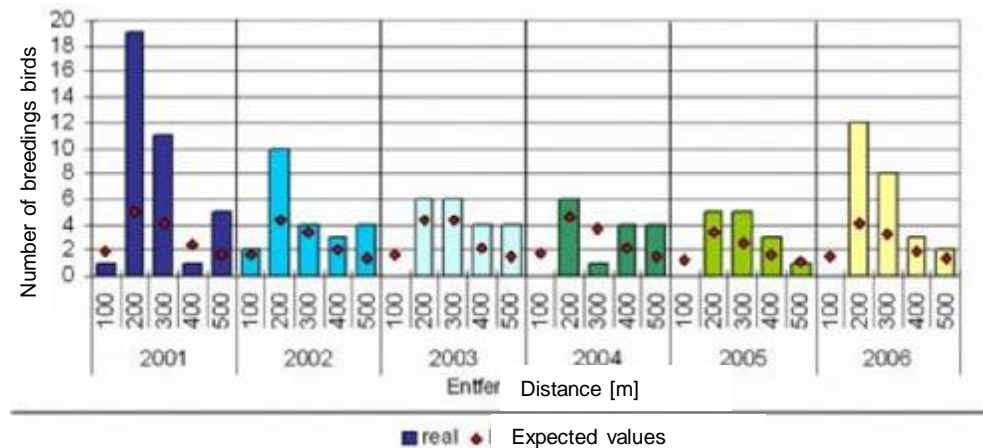
Project level

Conclusion

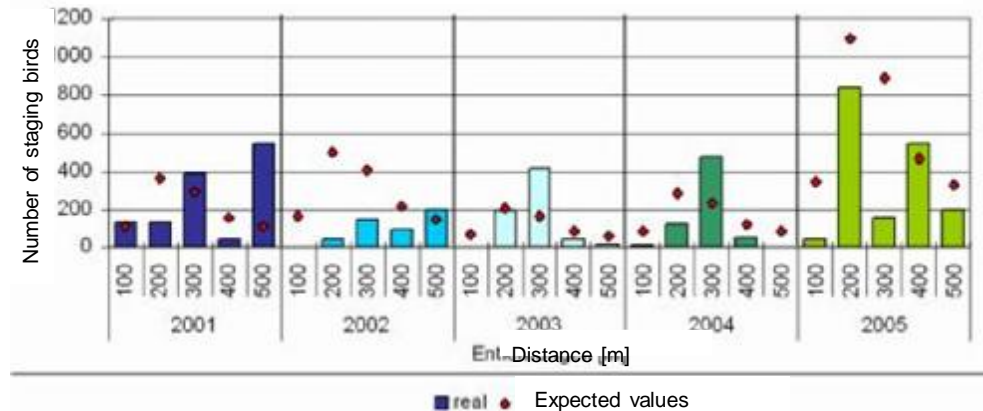
Species mainly affected: waders and waterbirds  
(difference between breeding and roosting season)



Breeding Lapwings and their distance to wind turbines in Hinrichsfehn 2001 -06



Roosting lapwings and their distance to wind turbines in Hinrichsfehn 2001 -05





Structure

Introduction

Collision risk

Disturbance and Displacement

**Habitat loss**

Bats

Location

SSS-Specificity

Regional level

Community level

Project level

Conclusion





## Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

## Bats

Location

SSS-Specificity

Regional level

Community level

Project level

Conclusion

Main impact: collision, especially in late summer und autumn, species mainly affected are the genus *Nyctalus* and *Pipistrellus*

Habitat loss may play role in forests (roosting sites)

Displacement seems to be unimportant





Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

**Location**

SSS-Specificity

Regional level

Community level

Project level

Conclusion

To avoid major conflicts wind farms should not be placed at (PERCIVAL 2005, DREWITT & LANGSTON 2006):

1. Locations with a high density of birds of prey
2. Locations with a high density of birds with a high collision risk and a low reproduction rate
3. Locations where high numbers of breeding and roosting birds could be displaced.
4. Locations with high activity of collision sensitive bat species, especially during migration.
5. Locations in close vicinity to important roosts of collision sensitive bat species

**Consequence: „Data, data, data“**





## Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

## **SSS-Specificity**

Regional level

Community level

Project level

Conclusion

The **SSS-Specificity** (BEVANGER 2011):

1. Site
2. Species
3. Season

Each location is unique!

All steps in the planning process should be adapted to the SSS-Specificity of the individual planning case (survey methods and effort, mitigation measures, siting of turbines etc.)

Scoping is particularly important.

**Problem:** How to integrate this concept into the spatial planning levels and into any standardization effort.



Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

**Regional level**

Community level

Project level

Conclusion

**Common suggestion:  
handle conflicts on a more regional level**

Depending of the federal state there are mainly three different approaches in Germany to deal with the planning of wind farm locations on the regional level:

- Final determination of wind farm sites with exclusion effect
- Determination of suitable wind farm sites without exclusion effect
- Leave it to the community level



Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

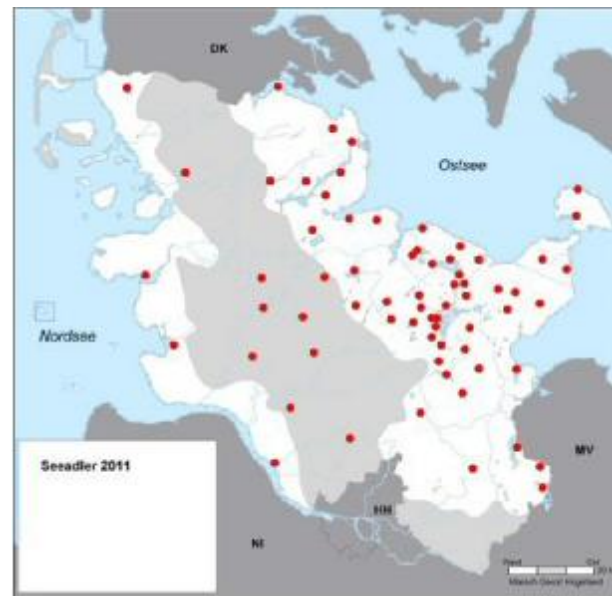
Community level

Project level

Conclusion

Precondition to be able to identify suitable areas for wind farms which have significantly fewer conflicts than the excluded areas: comparable data over the whole planning area

Planner's dilemma: mostly you don't have such data



White-tailed sea eagles in Schleswig-Holstein 2011 ([www.projektgruppeseeadlerschutz.de](http://www.projektgruppeseeadlerschutz.de))

But what about Red kites or bats?

Consequence: you are just not able to identify the most suitable areas as you can't compare conflicts due to lack of data



Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

**Regional level**

Community level

Project level

Conclusion

**Possible solutions:**

- Regional planning must not be exhaustive, proposed wind farm areas should be modifiable, other areas should be open for planning on the local scale
- Regional planning only identifies No-Go-areas (like breeding areas of eagles, valuable landscapes, wetlands, protected areas etc.) and leaves major parts of the region open for planning on the local scale



Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

**Community level**

Project level

Conclusion

Common procedure in Lower Saxony (without exhaustive regional planning):  
Identify the most suitable areas for wind farms in the community on the basis of comparable and comprehensive data

**First step:** location concept with regard to housing settlements, infrastructure, protected areas etc.  
= identifying the No-Go-areas

**Second step:** data collection in the remaining possibly suitable areas (birds, bats, landscape)

**Third step:** evaluate the data and choose one or more wind farm areas with little conflicts in a political and public debate



Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

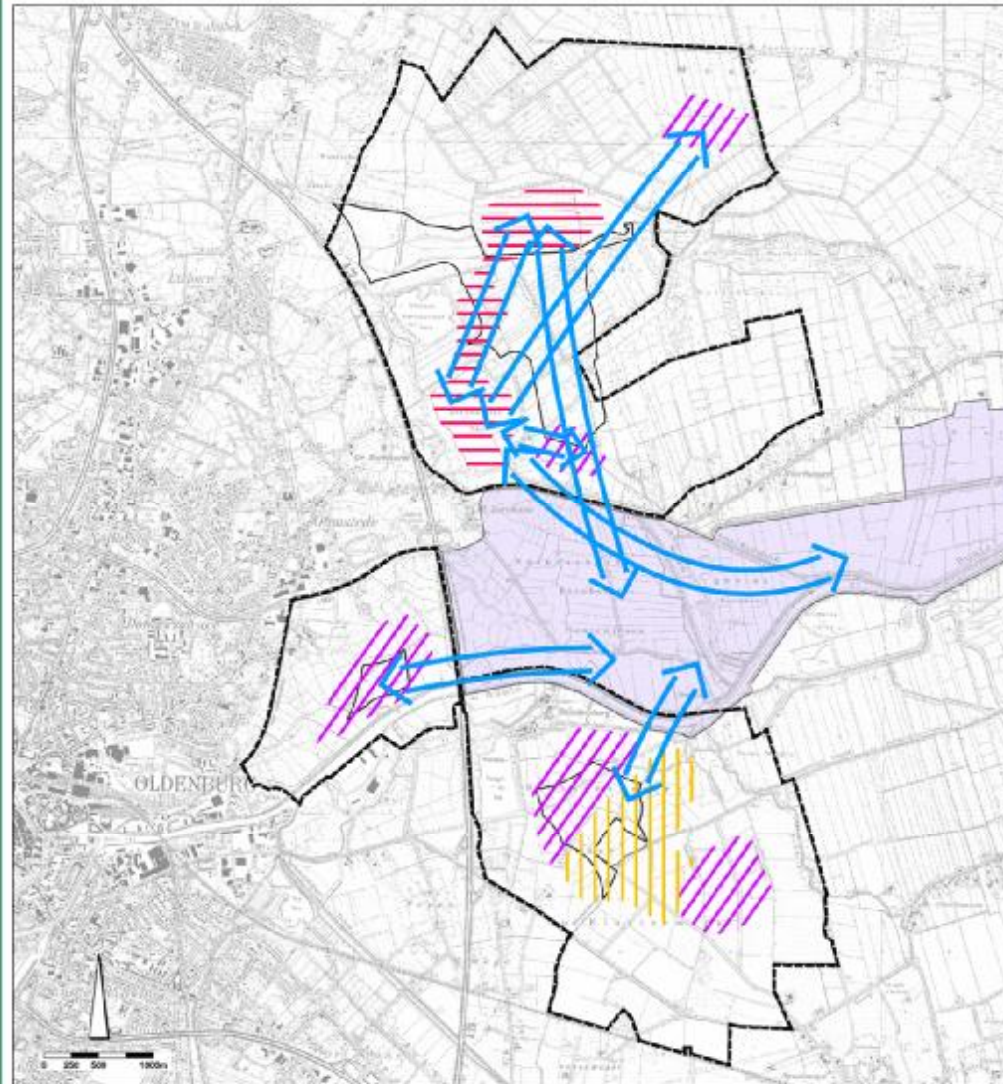
SSS-Specificity

Regional level

**Community level**

Project level

Conclusion



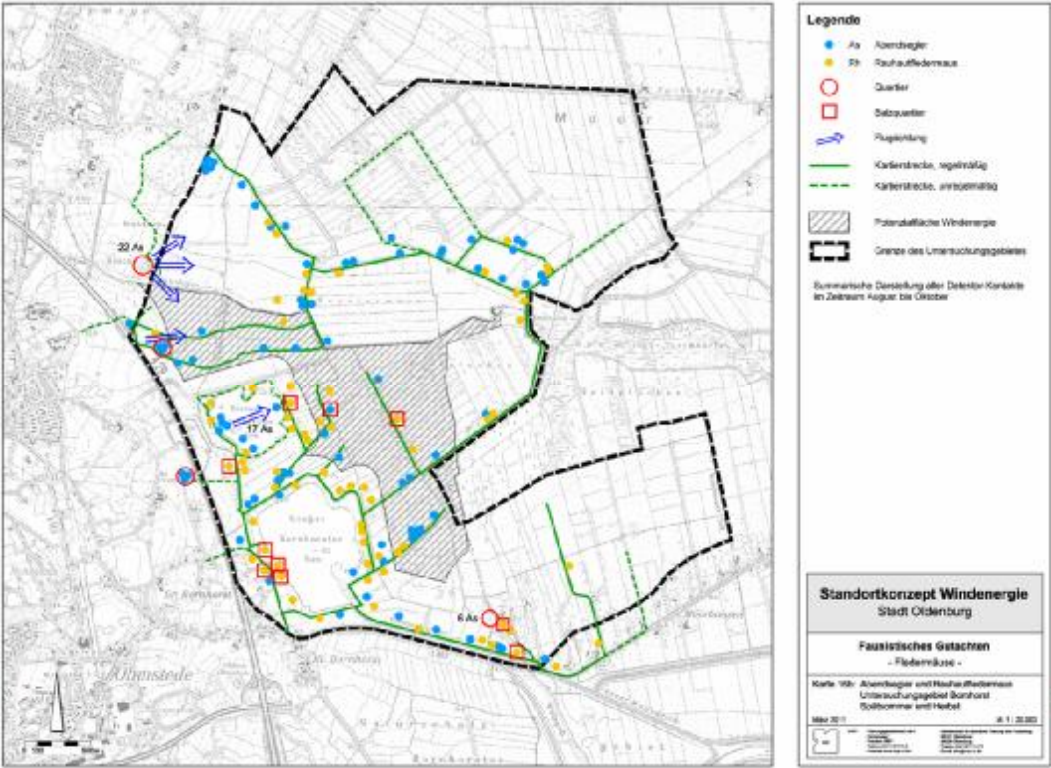
**Example:**  
Selection of wind farm location on the basis of 2 year's data about feeding and roosting sites of wintering geese with national importance

# Community level

- Structure
- Introduction
- Collision risk
- Disturbance and Displacement
- Habitat loss
- Bats
- Location
- SSS-Specificity
- Regional level
- Community level**
- Project level
- Conclusion

**Obvious problem:** wind farm areas might be chosen which should have been avoided from a regional perspective because the community doesn't have any well suited area, but wants to have a wind farm

**Possible solution:** neighbouring communities could cooperate without creating an area too big to collect the necessary data





Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

**Project level**

Conclusion

**Example from Australia: BAM-Plan**  
(Bat and avifauna management plan)

A comprehensive strategy for management and the prevention of bird and bat losses on the basis of pre- and post-construction surveys

à if post-monitoring detects any significant impact, specific habitat enhancement is implemented







## Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

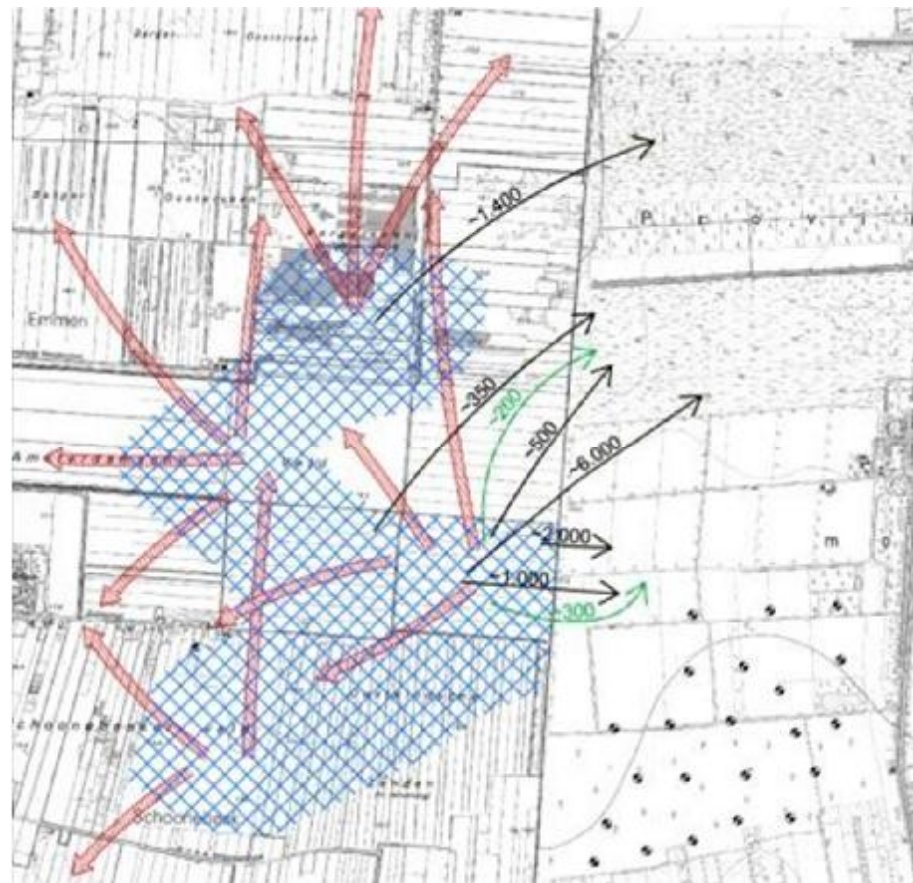
SSS-Specificity

Regional level

Community level

**Project level**

Conclusion



- Micro-siting based on detailed investigations
- Temporal turbine shut down (bats)
- Monitoring



# Conclusion

## Structure

- Introduction
- Collision risk
- Disturbance and Displacement
- Habitat loss
- Bats
- Location
- SSS-Specificity
- Regional level
- Community level
- Project level

## Conclusion

- Each planning case has its own SSS-specificity
- Hierarchic planning system must be adaptive enough to account for that





### Structure

Introduction

Collision risk

Disturbance and Displacement

Habitat loss

Bats

Location

SSS-Specificity

Regional level

Community level

Project level

### **Conclusion**

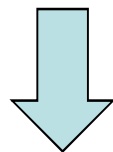
- Early identification of No-Go-Areas on a regional level, optional proposals for suitable wind farm areas being modifiable at the community level
- Comprehensive data gathering on the community level based on local location concepts; cooperation of neighbouring communities may be favourable; comprehensible selection of suitable locations
- Detailed investigations and monitoring on the project level (if appropriate)



Structure

- Introduction
- Collision risk
- Disturbance and Displacement
- Habitat loss
- Bats
- Location
- SSS-Specificity
- Regional level
- Community level
- Project level

Conclusion



data



location/mitigation



monitoring



Thank you very much!

Dr Marc Reichenbach  
ARSU GmbH

[reichenbach@arsu.de](mailto:reichenbach@arsu.de)  
[www.arsu.de](http://www.arsu.de)



Black-tailed  
Godwit