Monitoring Standards for Large Carnivores in Germany

Felix Knauer

Research Institute of Wildlife Ecology

University of Veterinary Medicine, Vienna

A Basis for Management Concepts for Returning Large Carnivores

Project team

- Ilka Reinhardt and Gesa Kluth, LUPUS

- Petra Kaczensky and Georg Rauer, FIWI, Vetmeduni Vienna

- Ulrich Wotschikowsky

- Felix Knauer, Uni Freiburg

Content

1. Development of nation-wide monitoring standards
2. Synopsis and evaluation of existing models for damage compensation and prevention
3. Setup of a centre for genetic analysis
4. Habitat suitability analysis for large carnivores in Germany
5. Effect of infrastructure and traffic on habitat suitability and expansion
6. Recommendation for the handling of problem individuals
7. Co-ordination and harmonisation of activities within Germany and with EU and other countries

Monitoring

Monitoring according to habitats directive consists of two parts:

- Data collection

- Data analysis

Data Collection

Pre-analysis: fake or real?

SCALP-Criteria:

C1: hard fact: captured or dead animal, genetic proof, photo, radio tracking

C2: confirmed = sign confirmed by an experienced person (AND documented, when used for occurrence maps)

C3: unconfirmed = all other signs, which could be caused by a LC, especially sightings, undocumented tracks, kills, etc.

false: signs clearly not caused by LC

Experienced person: extensive field experience with the LC species concerned

Data Collection - example

Lynx: Single footprints

…

C2 – confirmed observation

Foot prints qualify as confirmed lynx observation, if

- at least three footprints are recognizable that are typical for lynx.

Documentation

- Field protocol (lynx observation) AND
- Photographs of at least three footprints, with unambiguous size comparison (scale!).
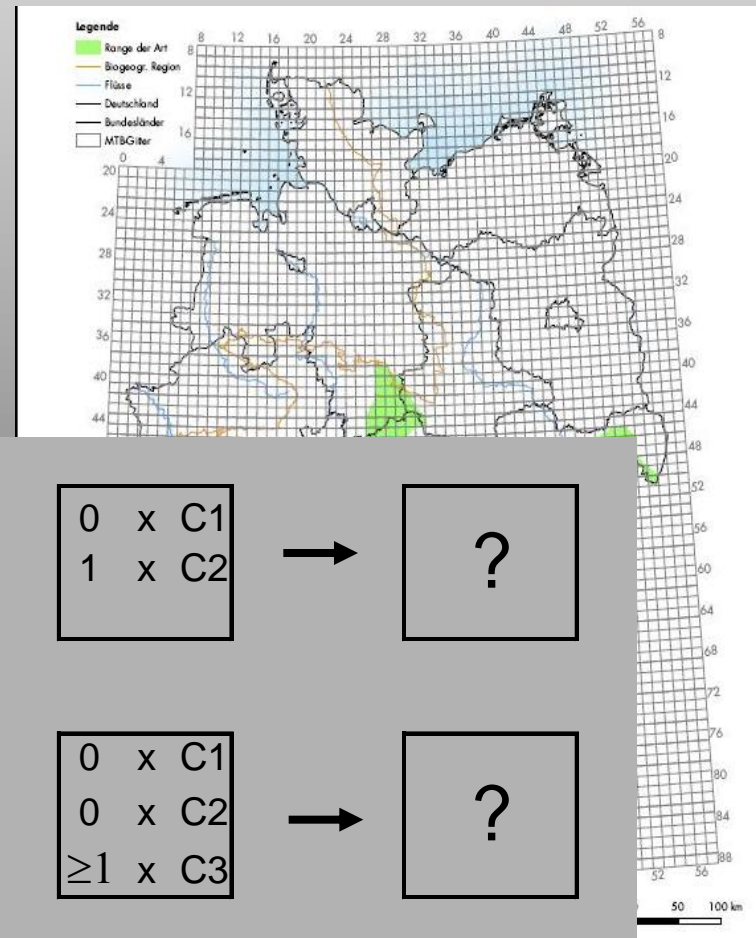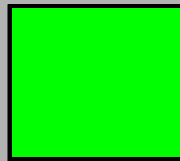
Data Analysis

- spatial: occurence and distribution

- demographic: population size

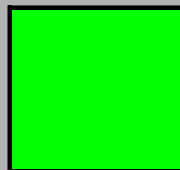- habitat suitability and threats

Data Analysis

occurence

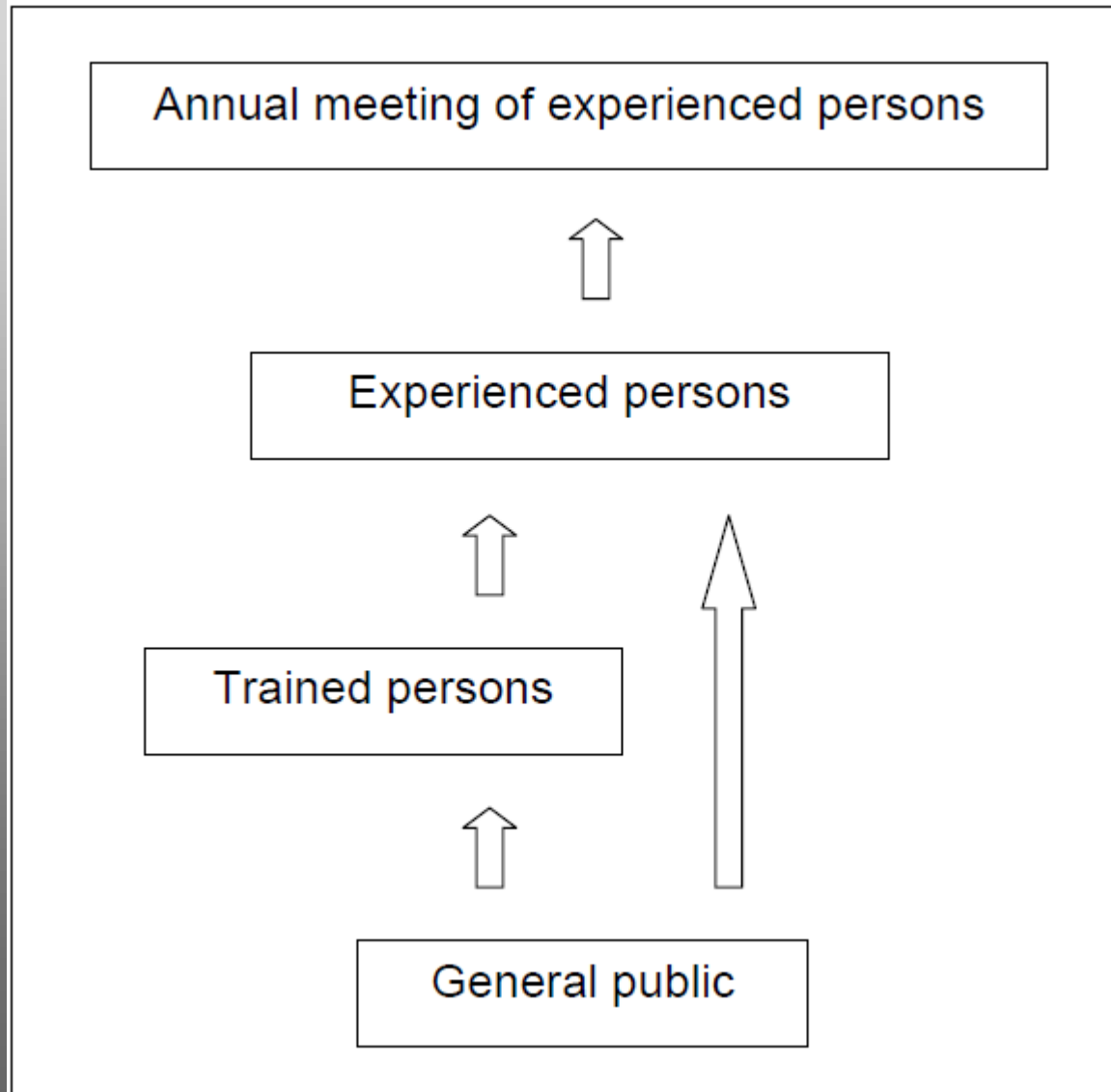raster with 10 km * 10 km

When is a raster cell occupied?

≥1 x C1	→	(green)
0 x C1, 1 x C2	→	?
0 x C1, ≥2 x C2	→	(green)
0 x C1, 0 x C2, ≥1 x C3	→	?

Structures – actual proposal

Structures - discussion

Approach	Description	Passive monitoring	SCALP assessment	Active monitoring	Expansion of monitoring into new areas	Calibration of experienced persons	Consultation and assistance in dealing with problem animals	Assistance and consultation relative to damage prevention	In-depth analyses
1	Only trained persons	Yes	No	No	No	No	No	No	No
2	Trained persons with contact to experienced persons	Yes	To some extent[1]	To some extent[2]	No	No	No	No	No
3	Trained persons, as well as the area's own experienced persons	Yes	Yes	Yes	Yes	No	To some extent[3]	No	To some extent[3]
4	Approach 3, plus annual national meetings	Yes	Yes	Yes	Yes	Yes	To some extent[3]	No	To some extent[3]
5	Monitoring centre	Yes	Yes	Yes	Yes	Yes	To some extent[3]	To some extent[3]	To some extent[3]
6	Large-carnivore Competence Centre	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Monitoring of Large Carnivores in Germany

BfN-Skripten 251

2009

Contents

Habitat suitability for wolves in Germany

Problem: no wolves in most of Germany

Two possible ways:

- expert opinion

- extrapolation of scientific results from other areas

Habitat Suitability in Adjacent Countries

Habitat Suitability Models considered:

Poland I: forest cover +, forest fragmentation –, highway
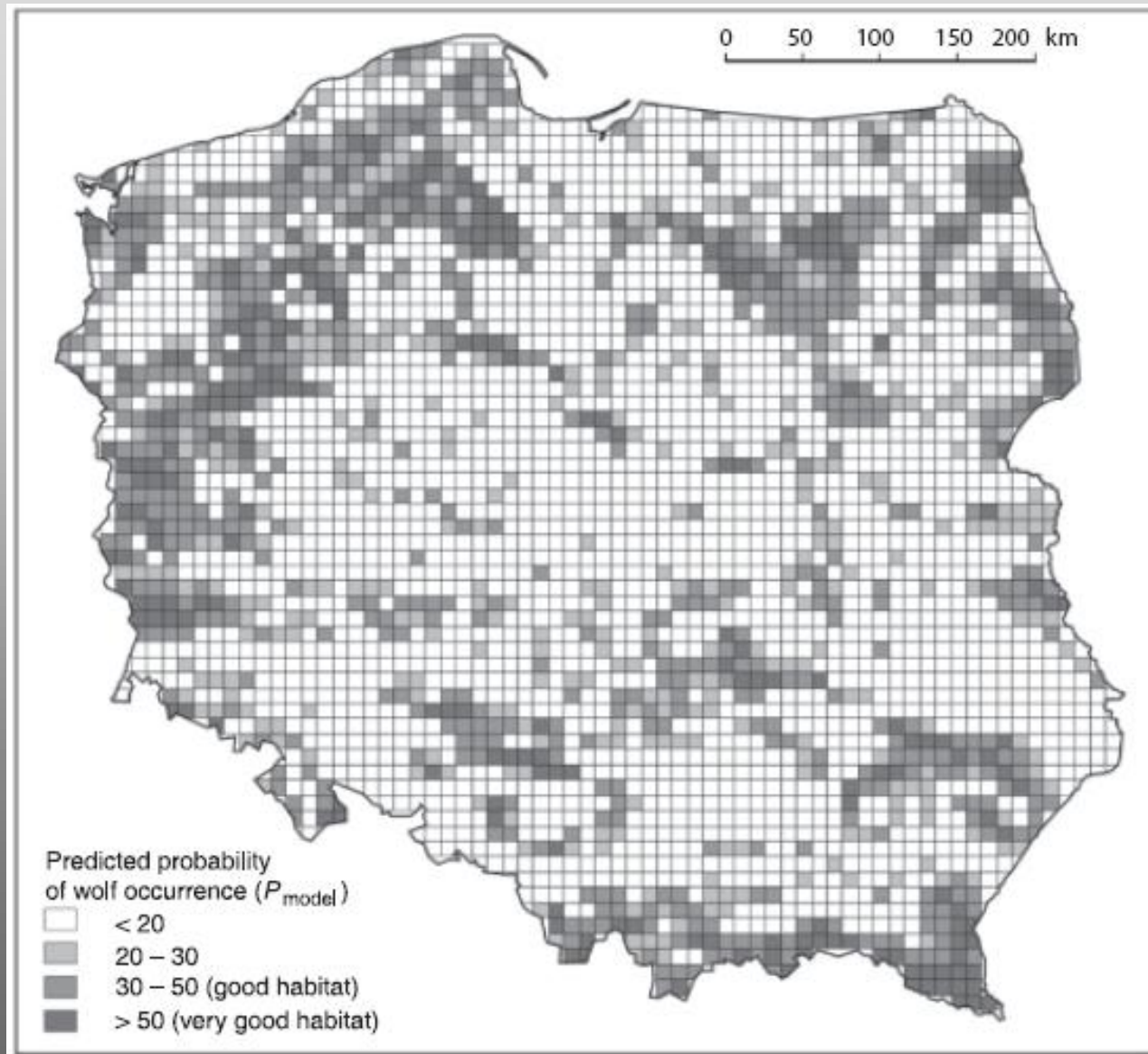   density – (Jedrzejewski et al. 2004. Diversity Distrib. 10: 225-233)

Poland II: forest cover ++, meadows +, wetlands +, road
    density – (Jedrzejewski et al. 2008. Anim. Cons. 11: 377-390)

Italy I: forest cover +, game density and diversity +, human
    infrastructure – (Massolo & Meriggi. 1998. Ecography 21: 97-107)

Switzerland (Valais): game diversity +, settlements –, arable
    fields –, human density – (Glenz et al. 2001. Lands. Urban Plan. 55: 55-65)

(Italy II: alpine only) (Marucco 2009)

Habitat Suitability in Poland

Predicted probability of wolf occurrence (P_{model})

- □ < 20
- ▨ 20 – 30
- ▨ 30 – 50 (good habitat)
- ▨ > 50 (very good habitat)

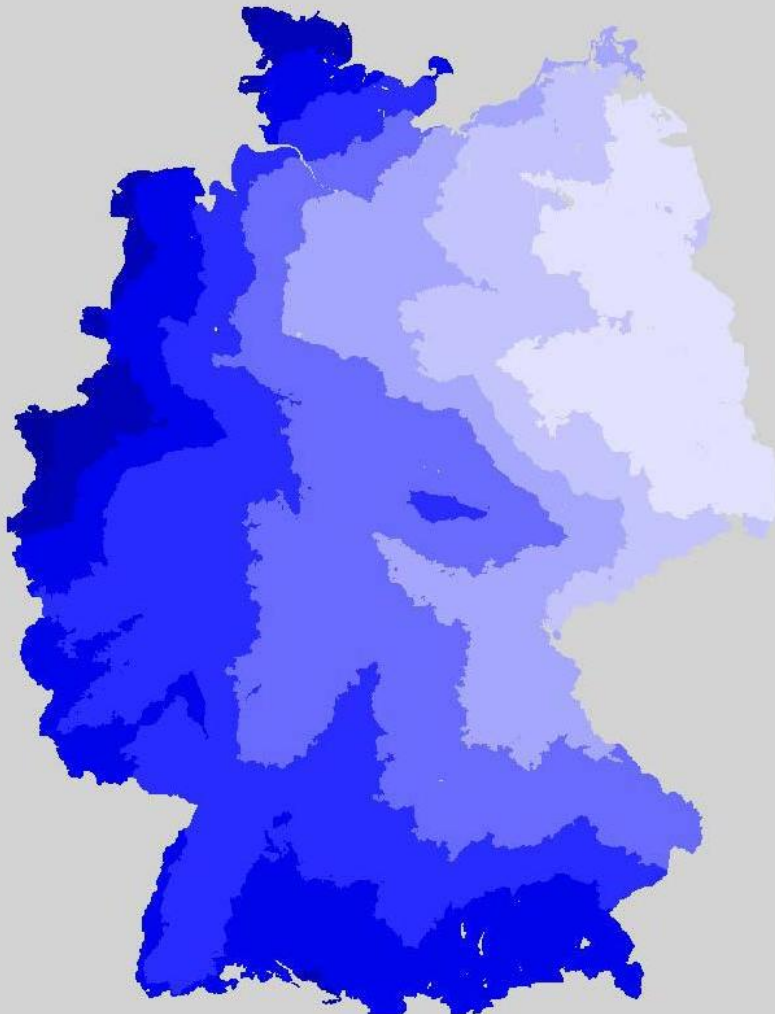# Habitat Suitability in Germany
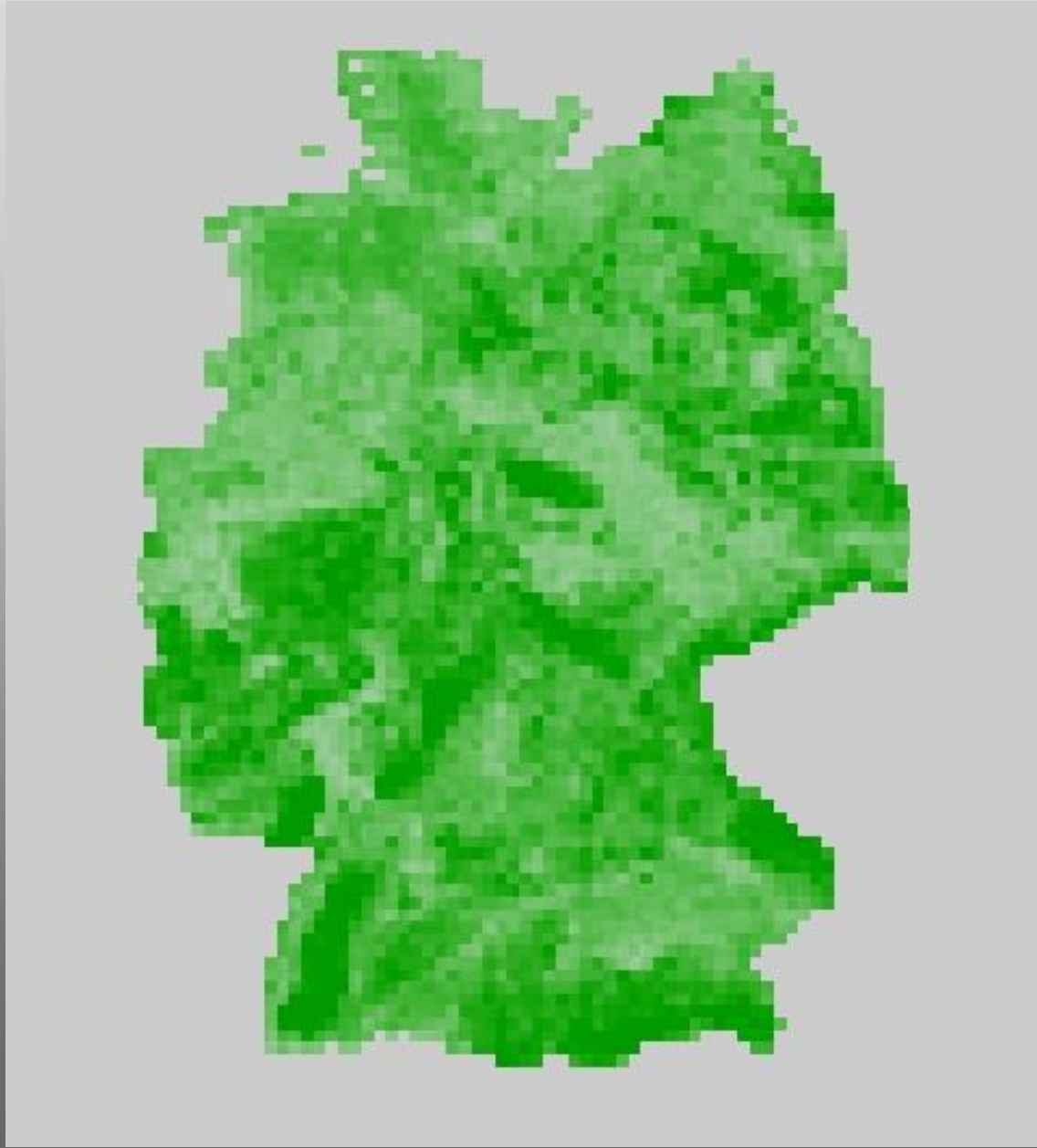
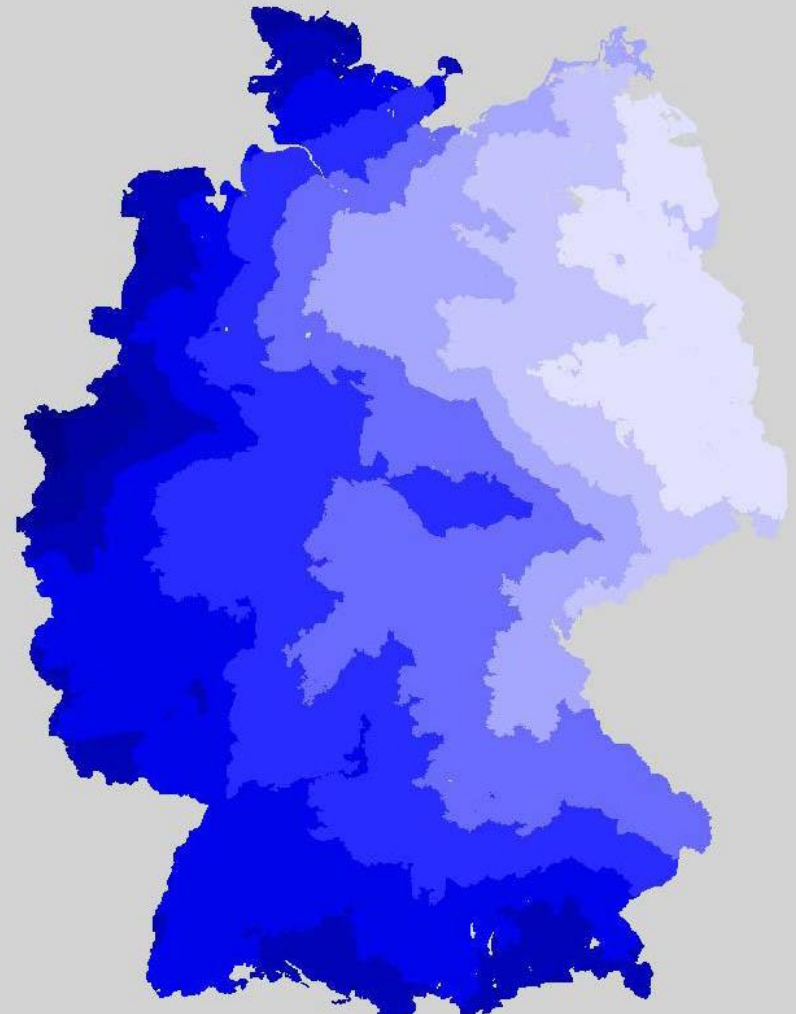# Habitat Suitability in Germany
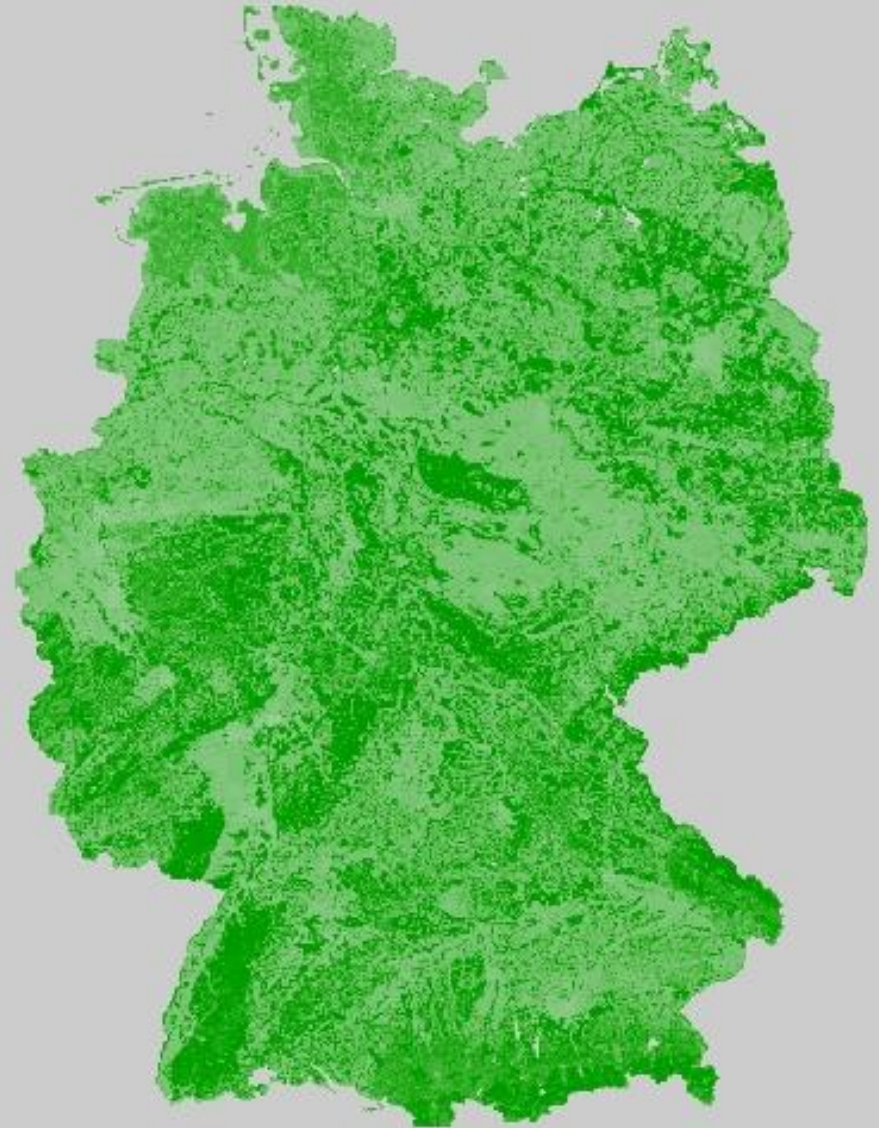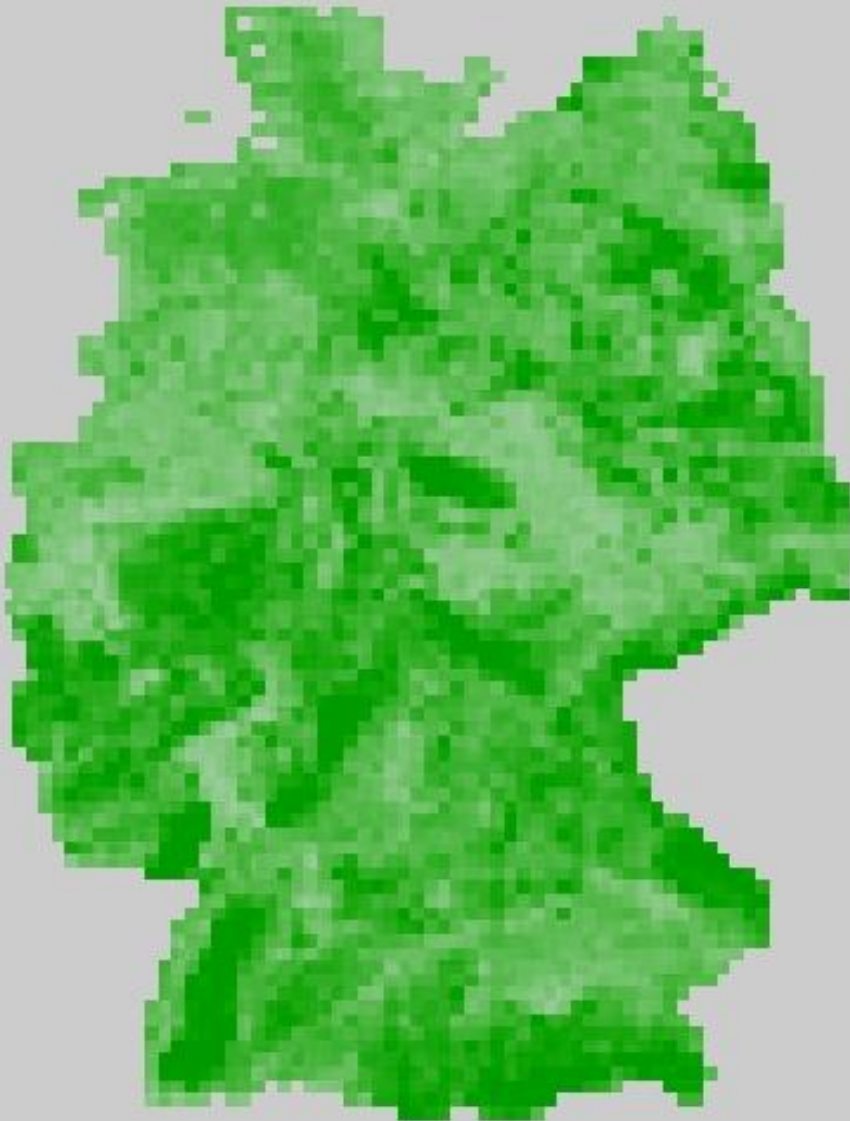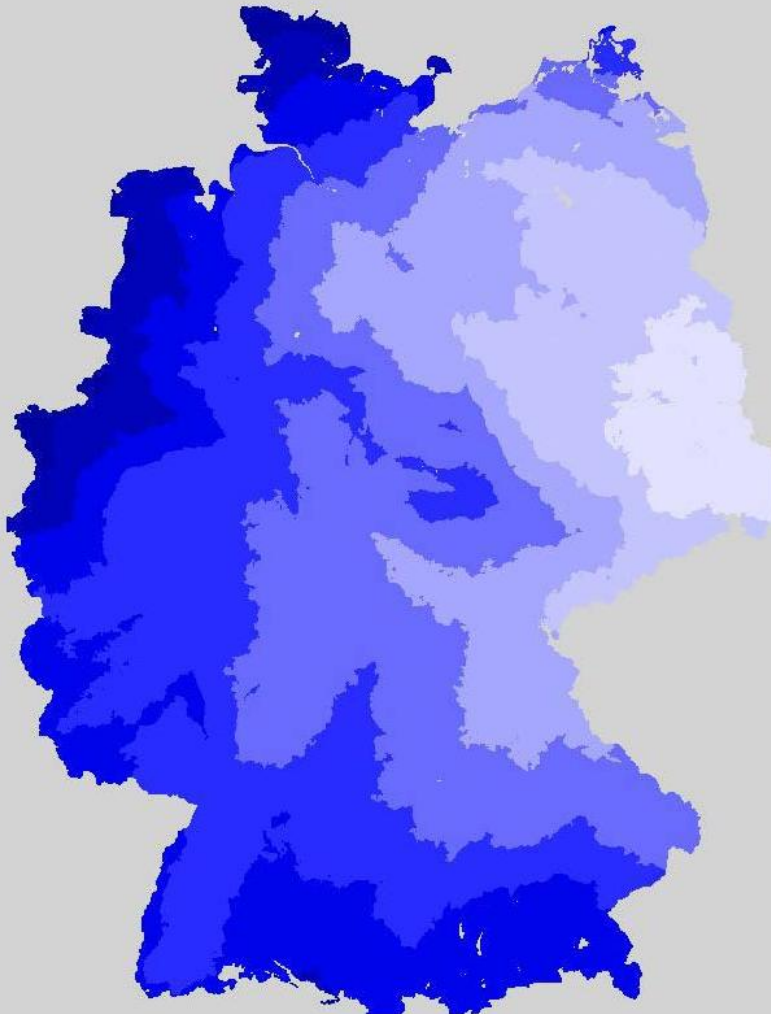
Estimation of Expansion
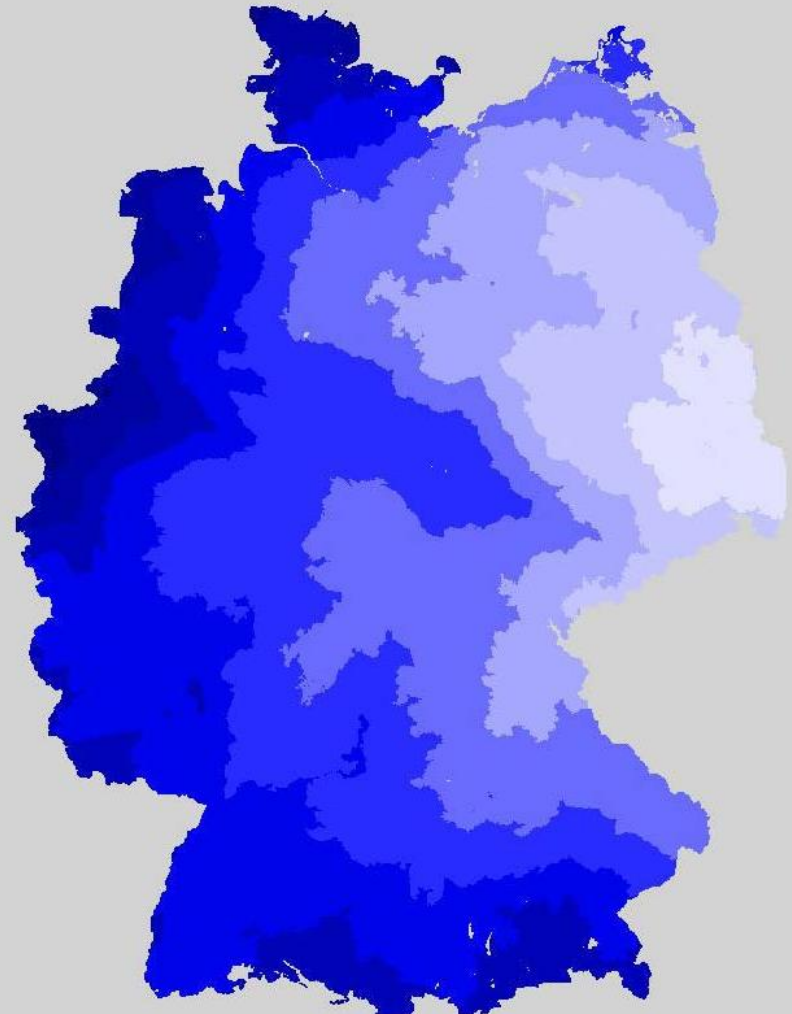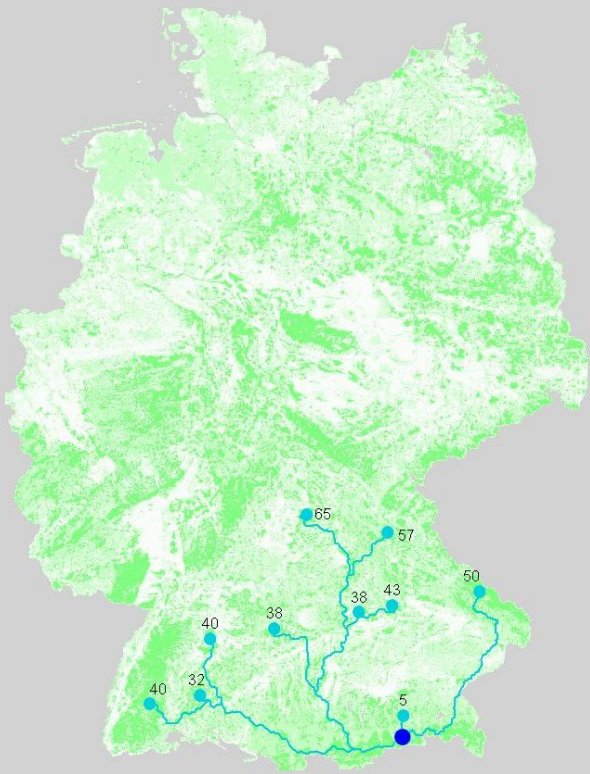
from Poland

without the effect of highways

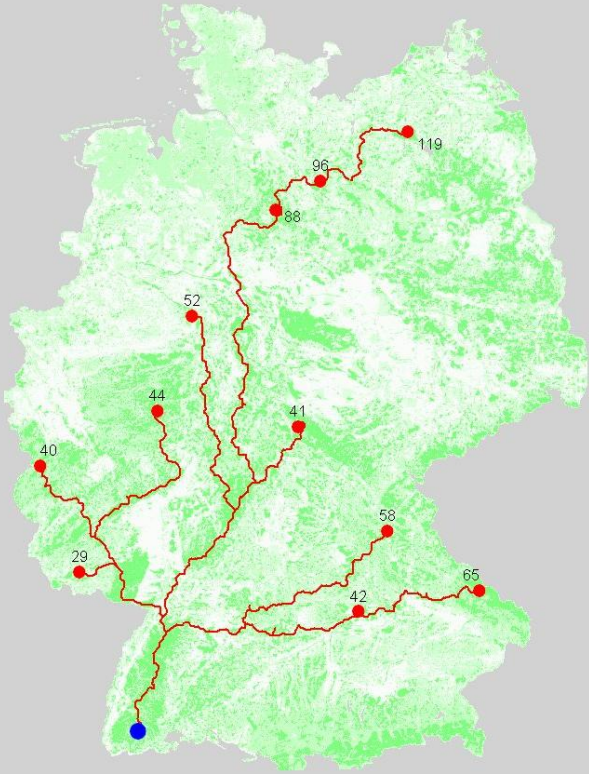with the effect of highways

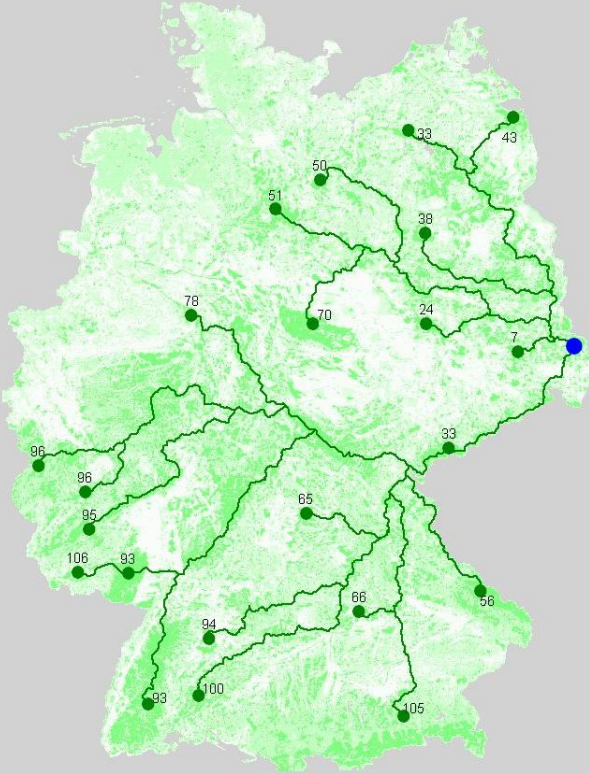# Estimation of Expansion
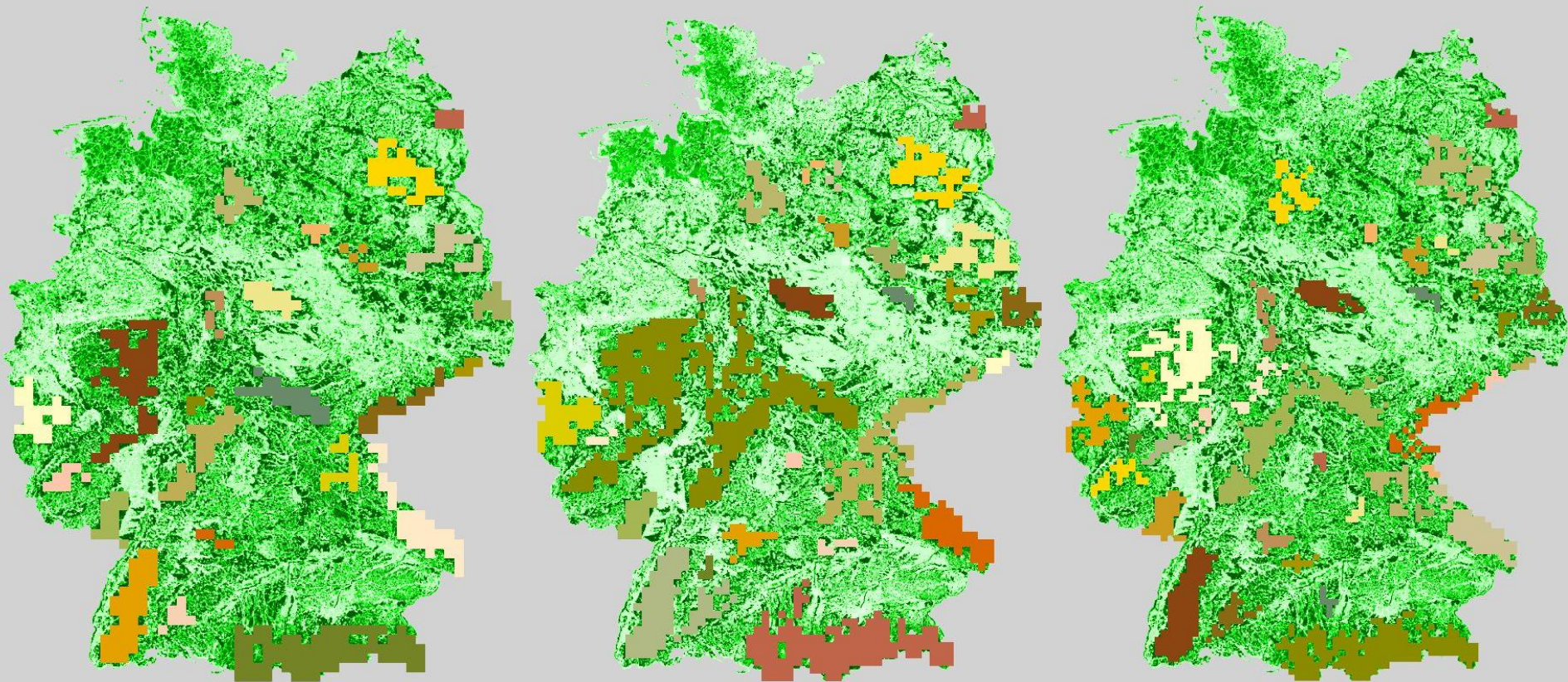
from Lausitz

without the effect of highways

with the effect of highways

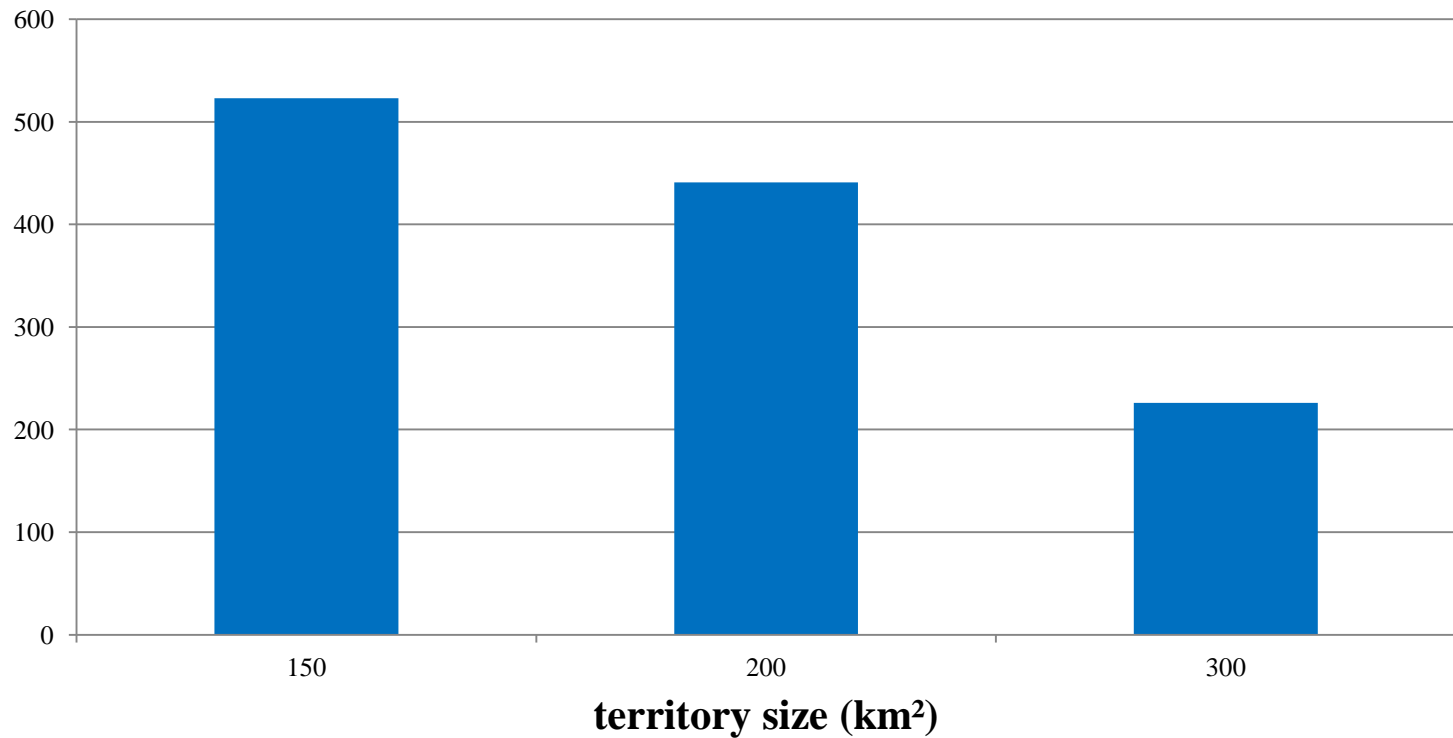# Estimation of Expansion

How many wolves can live in Germany?

| 300 km² | 200 km²
territory size | 150 km² |

Potential Number of Wolf Packs

Favourable Conservation Status

>= 1000 mature individuals, Germany only

number of wolf packs — bar chart with territory size (km²) on the x-axis (150, 200, 300) and values from 0 to 600 on the y-axis. Bars: 150 ≈ 520, 200 ≈ 440, 300 ≈ 225.