



*Great Bustard MoU and LIFE Project Meeting
Illmitz, 10 March 2017*

A close-up photograph of a Great Bustard standing in a field of tall grass. The bird's head is turned slightly upwards and to the right, showing its distinctive crest and patterned plumage. Its long, dark tail is visible at the bottom.

Evaluation of the impact of the White-tailed Eagle and Imperial Eagle on the Great Bustard through tagging of all three species with GPS loggers in Central Europe

*Rainer RAAB, Péter SPAKOVSKY and Jochen STEINDL,
Technical Office for Biology (Austria)
in co-operation with*

*Miklós LÓRÁNT, Kiskunság National Park Directorate (Hungary),
Márton HORVÁTH, MME (Hungary),
Balázs SZELÉNYI, Hermann Ottó Institute (Hungary) &
Miklos VÁCZI, Fertö-Hanság National Park Directorate (Hungary)*





Preliminary results from Central Europa





Great Bustard (*Otis tarda*)

Photo: F. Kovacs

Distribution of the Great Bustard in Central Europe

Distribution of the central European Great Bustard population in the period 1/1/2005 to 10/1/2017

Great Bustard distribution area

Data source:
Langgemach et al. (Germany)
Löránt et al. (parts of Hungary, Romania and Republic of Serbia)
Raab et al. (Austria, parts of Hungary, Slovak Republic and Czech Republic)

1:6,000,000

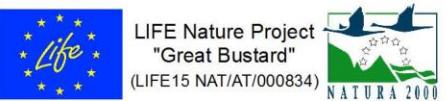


Map preparation:
Technisches Büro
für Biologie
Mag. Dr. Rainer Raab

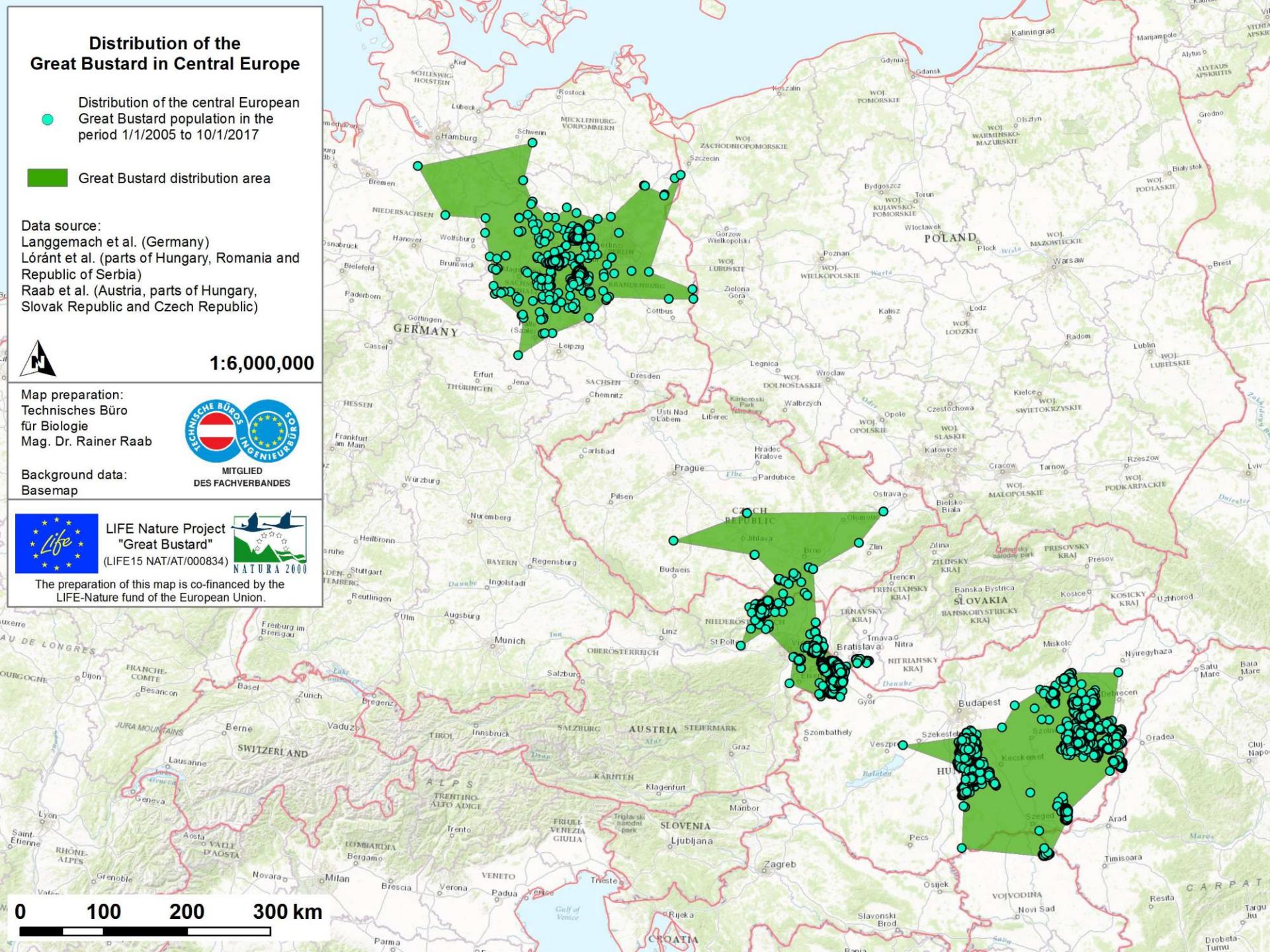


MITGLIED
DES FACHVERBANDES

Background data:
Basemap



The preparation of this map is co-financed by the LIFE-Nature fund of the European Union.



0 100 200 300 km

Distribution of the Great Bustard in Central Europe Germany

Distribution of the central European Great Bustard population in the period 1/1/2005 to 29/9/2014

Great Bustard distribution area

Data source:
Langgemach et al. (Germany)
Löránt et al. (parts of Hungary, Romania and Republic of Serbia)
Raab et al. (Austria, parts of Hungary, Slovak Republic and Czech Republic)

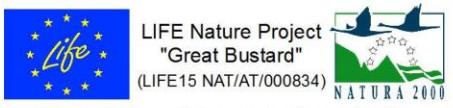


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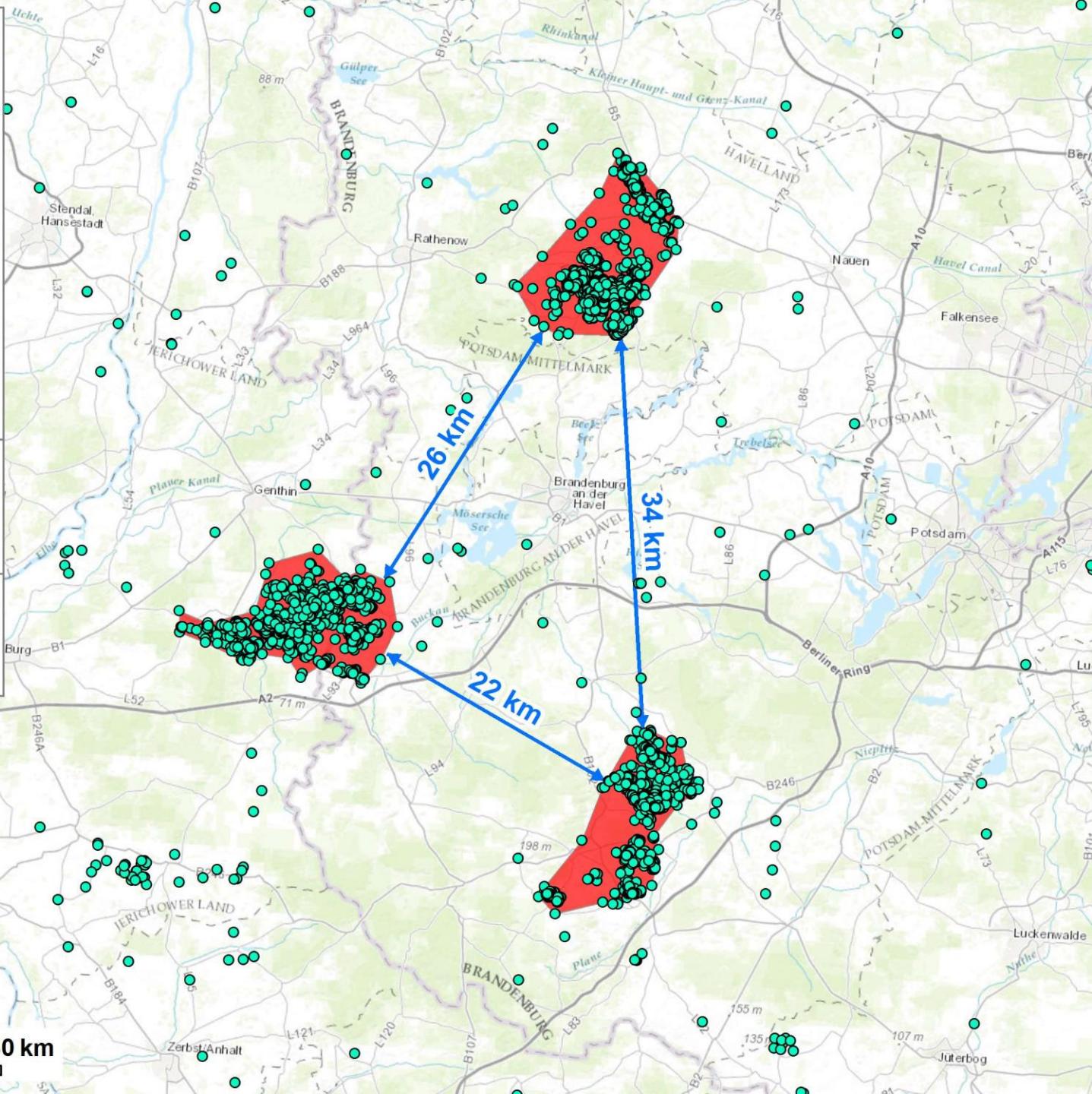


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Background data:
Basemap



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0 10 20 30 km

Distribution of the Great Bustard in Central Europe

Austria, Hungary, Czech Republic, Slovakia

Distribution of the central European Great Bustard population in the period 1/1/2005 to 10/1/2017

Great Bustard distribution area

Data source:
Langgymach et al. (Germany)
Löránt et al. (parts of Hungary, Romania and Republic of Serbia)
Raab et al. (Austria, parts of Hungary, Slovak Republic and Czech Republic)

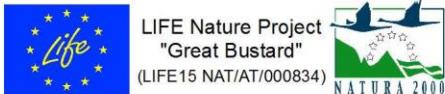


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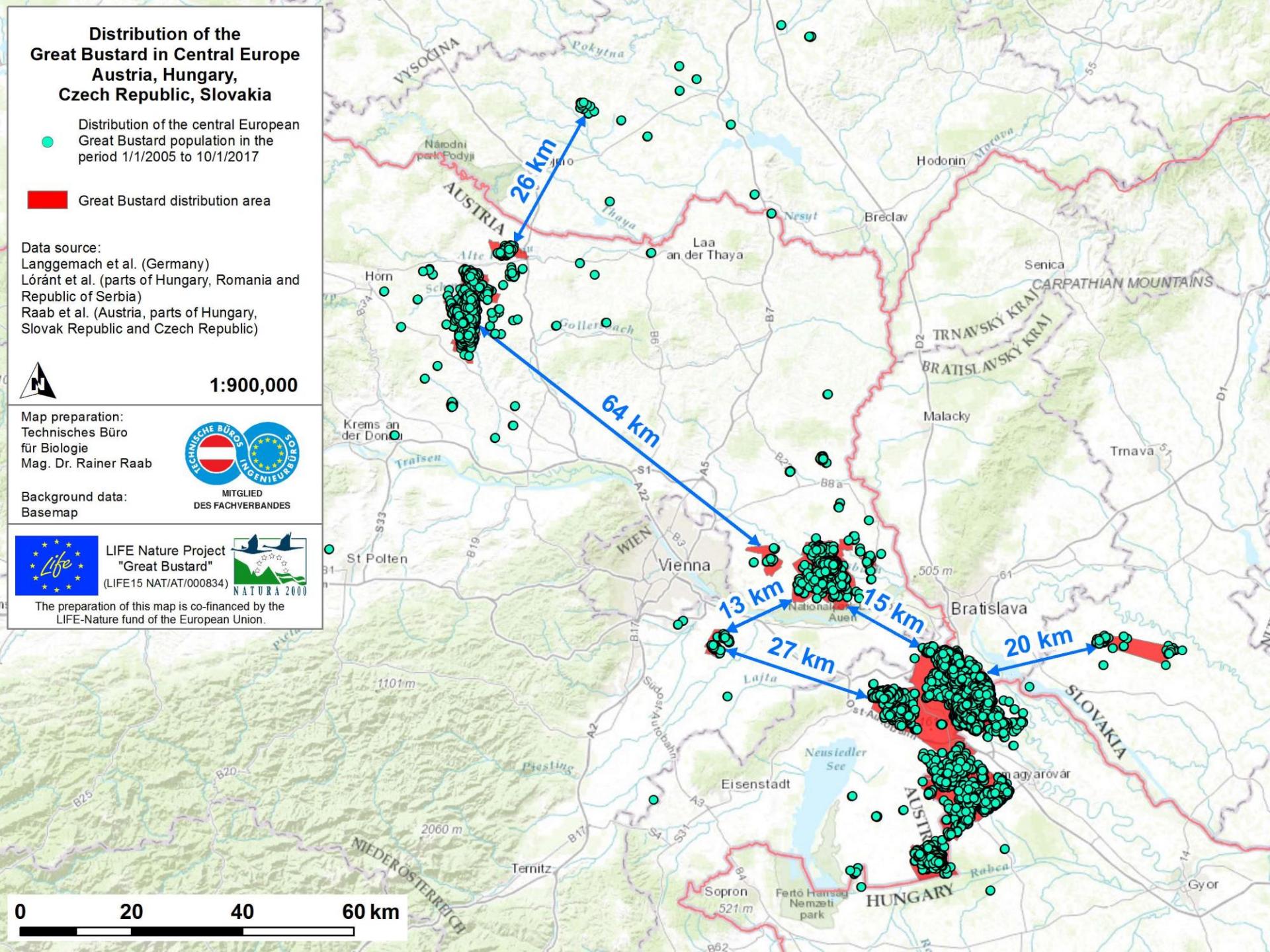
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Background data:
Basemap



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Distribution of the Great Bustard in Central Europe

Hungary, Romania, Serbia

Distribution of the central European Great Bustard population in the period 1/1/2005 to 11/9/2015

Great Bustard distribution area

Data source:
Langgemach et al. (Germany)
Lóránt et al. (parts of Hungary, Romania and Republic of Serbia)
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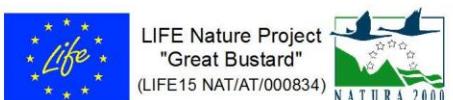


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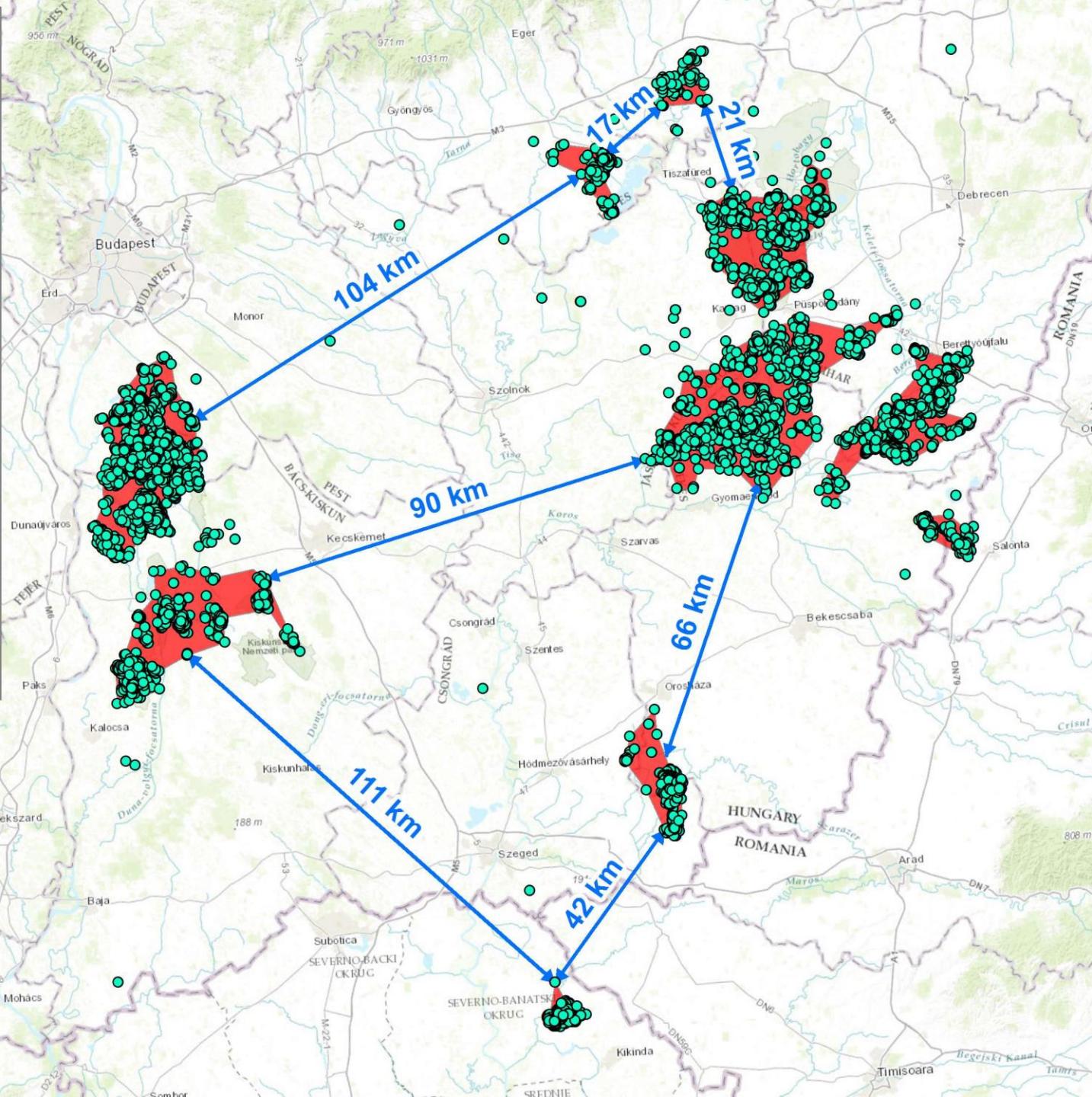
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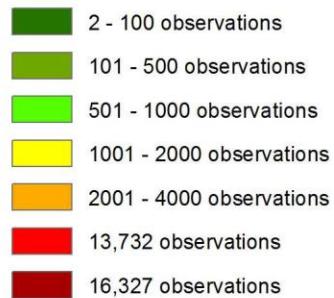
0 20 40 60 km



Distribution of the Great Bustard in Central Europe

Germany

10 x 10 km Raster - observations of at least 2 years within one raster:



Data source:

Langgemach et al. (Germany)
Lóránt et al. (parts of Hungary, Romania and Republic of Serbia)
Raab et al. (Austria, parts of Hungary, Slovak Republic and Czech Republic)



1:4,500,000

Map preparation:
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Background data:
Basemap



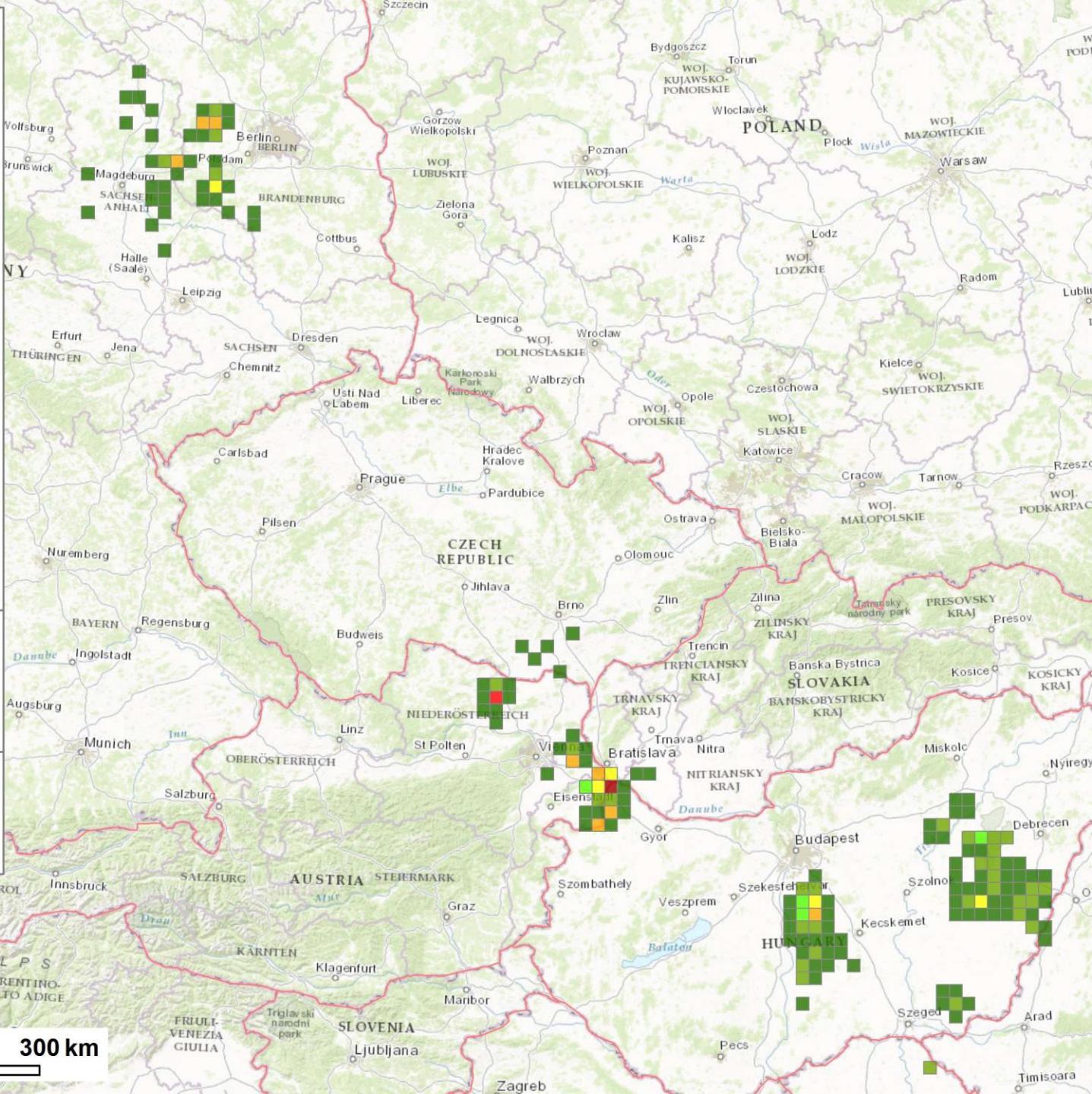
The preparation of this map is co-financed by the LIFE-Nature fund of the European Union.

0

100

200

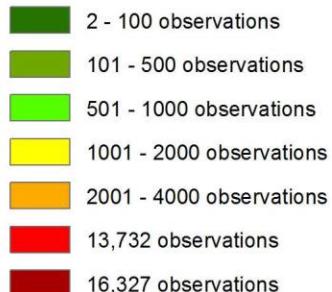
300 km



Distribution of the Great Bustard in Central Europe Germany

Distribution of the central European Great Bustard population in the period 1/1/2005 to 29/9/2014

10 x 10 km Raster - observations of at least 2 years within one raster:



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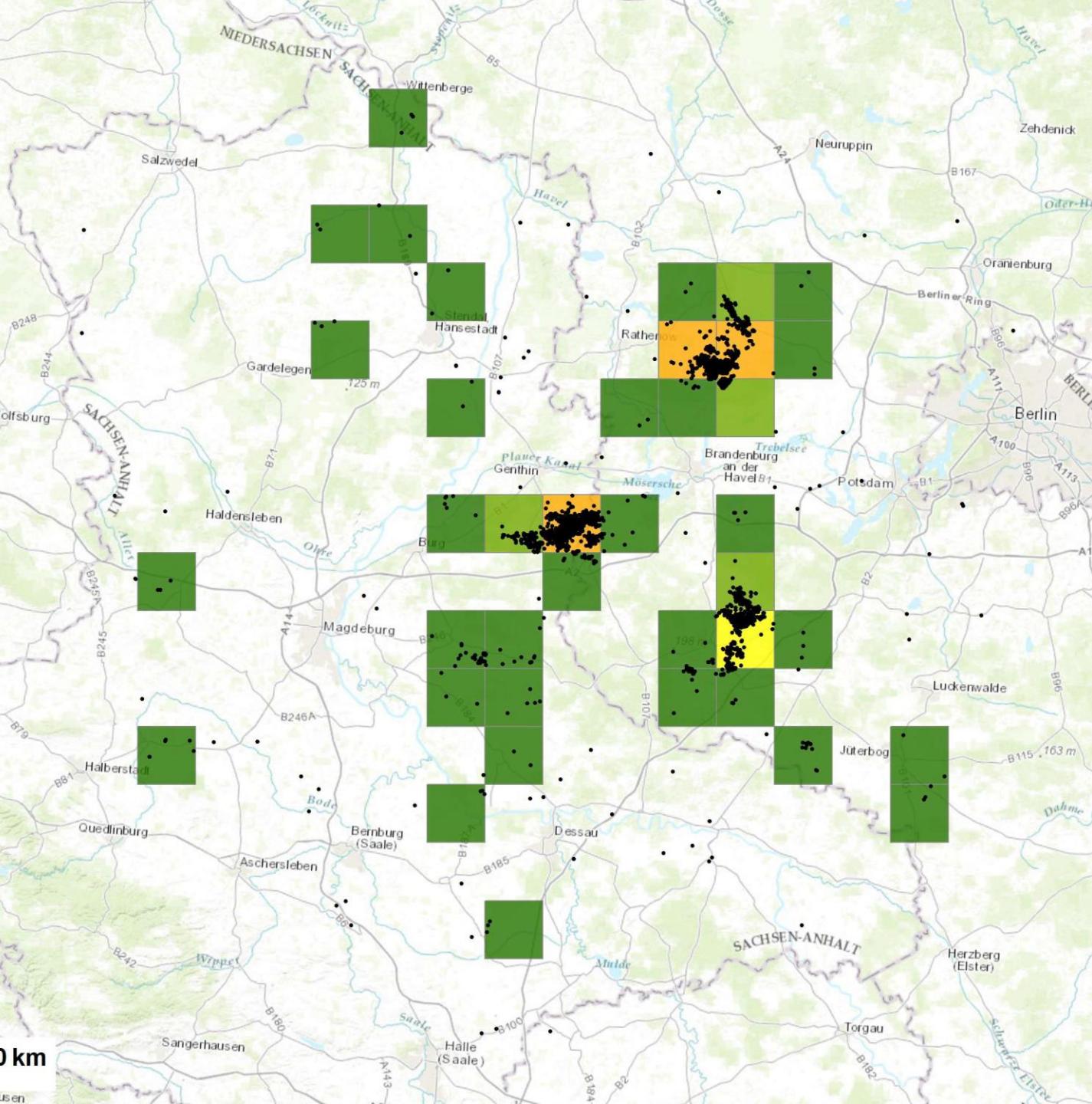


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0 20 40 60 km

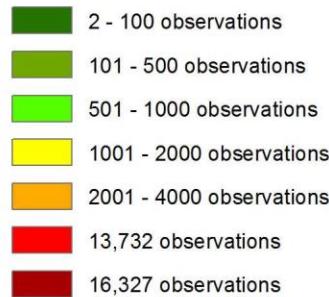


Distribution of the Great Bustard in Central Europe

Austria, Hungary, Czech Republic, Slovakia

Distribution of the central European Great Bustard population in the period 1/1/2005 to 10/1/2017

10 x 10 km Raster - observations of at least 2 years within one raster:



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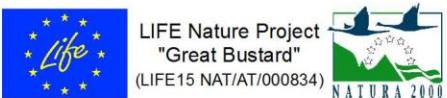
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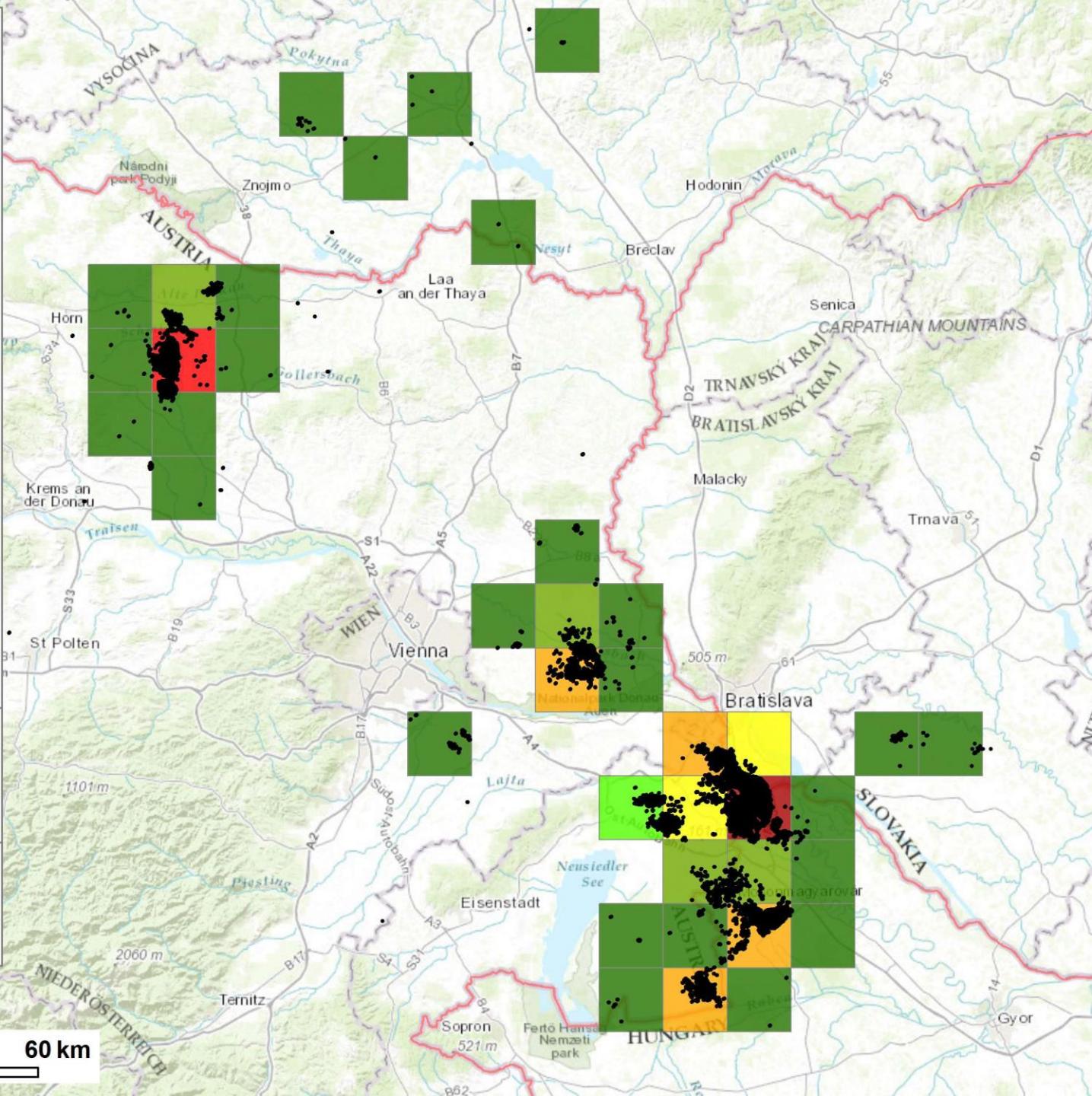
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0 20 40 60 km

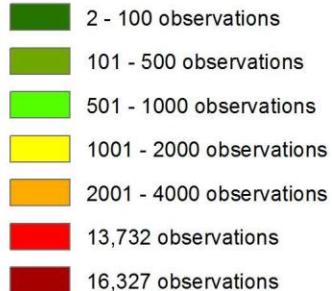


Distribution of the Great Bustard in Central Europe

Hungary, Romania, Serbia

Distribution of the central European Great Bustard population in the period 1/1/2005 to 11/9/2015

10 x 10 km Raster - observations of at least 2 years within one raster:



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1:1,300,000

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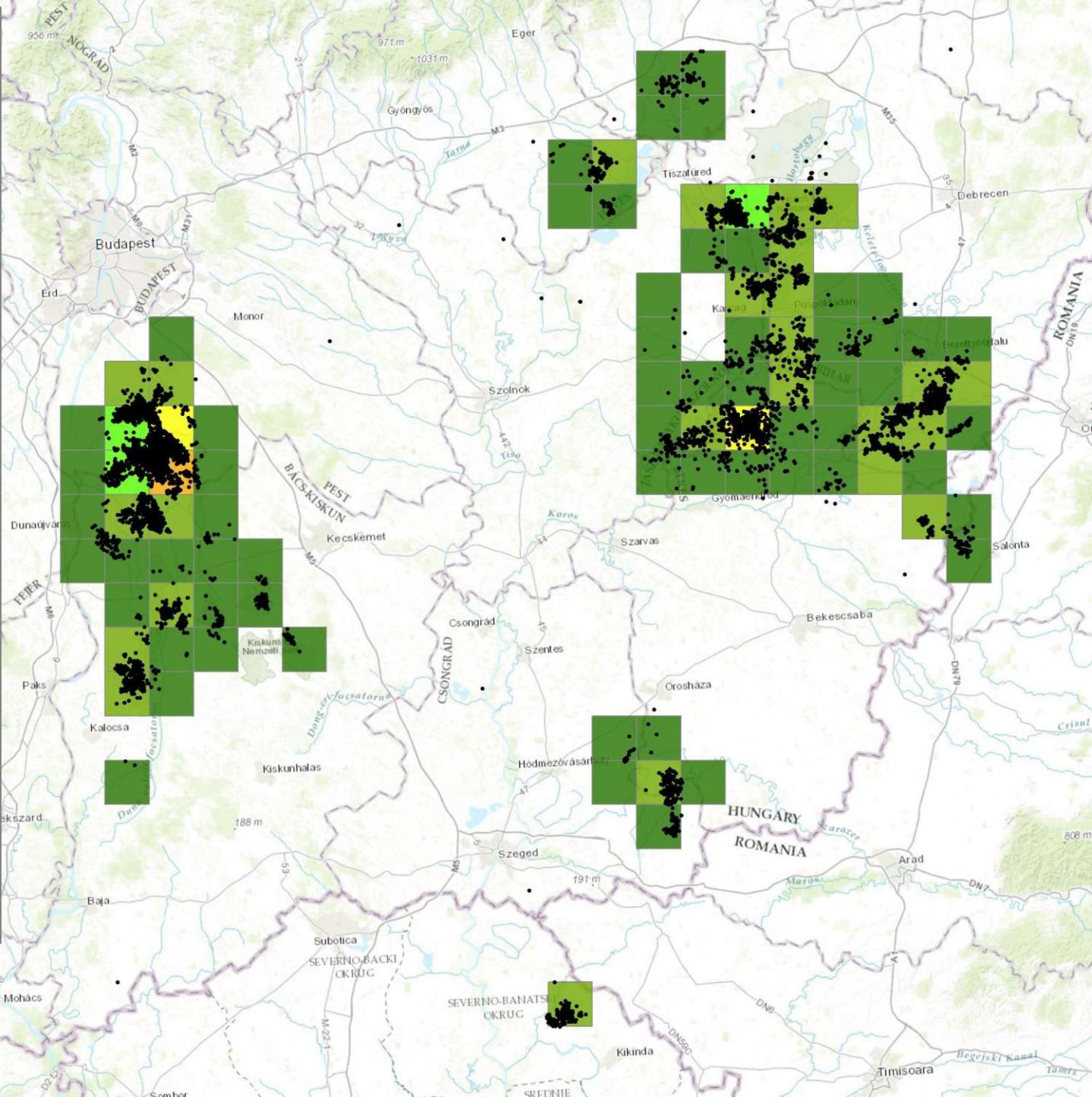


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0 20 40 60 km





White-tailed Eagle (*Haliaeetus albicilla*)

Photo: G. Rotheneder



White-tailed Eagle (*Haliaeetus albicilla*)

Photo: G. Rotheneder



Photo: R. Katzinger

White-tailed Eagle
(Haliaeetus albicilla)



White-tailed Eagle (*Haliaeetus albicilla*)

Photo: R. Katzinger

White-tailed Eagle Telemetry Overview Tagging Central Europe



Tagging areas White-tailed
Eagle 2015 and 2016

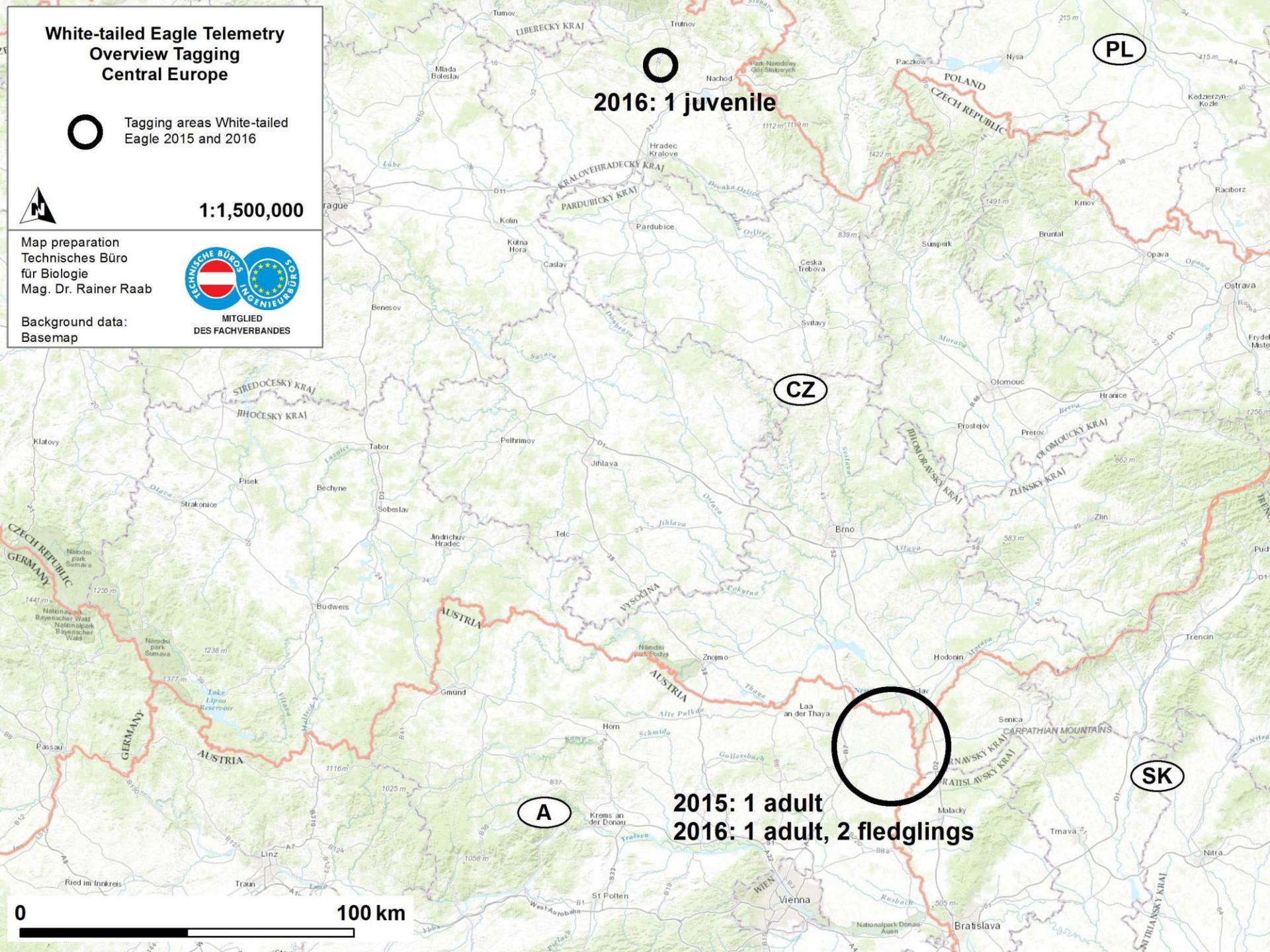


1:1,500,000



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Mag. Dr. Rainer Raab

Background data:
Basemap



Telemetry Data

White-tailed Eagle 2015 - 2017

5 individuals in the period
10/10/2015 to 14/2/2017 (71,302 DS)
1 individual 2015, 5 individuals 2016,
4 individuals 2017 (Status: 7/3/2017)

• Telemetry point

■ National border

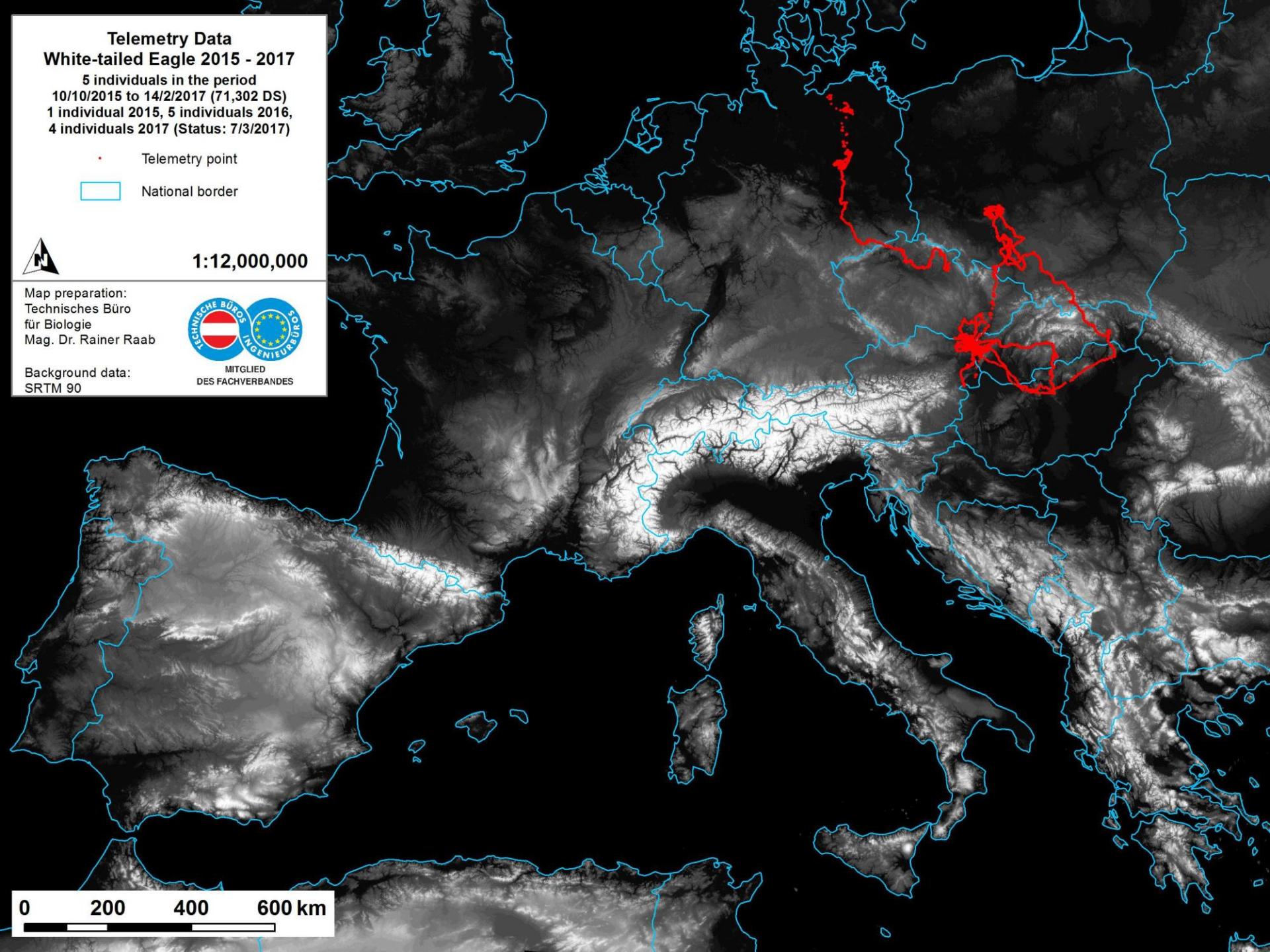


1:12,000,000

Map preparation:
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Mag. Dr. Rainer Raab



Background data:
SRTM 90



0 200 400 600 km

Telemetry Data White-tailed Eagle 2015 - 2017

5 individuals in the period
10/10/2015 to 14/2/2017 (71,302 DS)
1 individual 2015, 5 individuals 2016,
4 individuals 2017 (Status: 7/3/2017)

• Telemetry point

■ National border

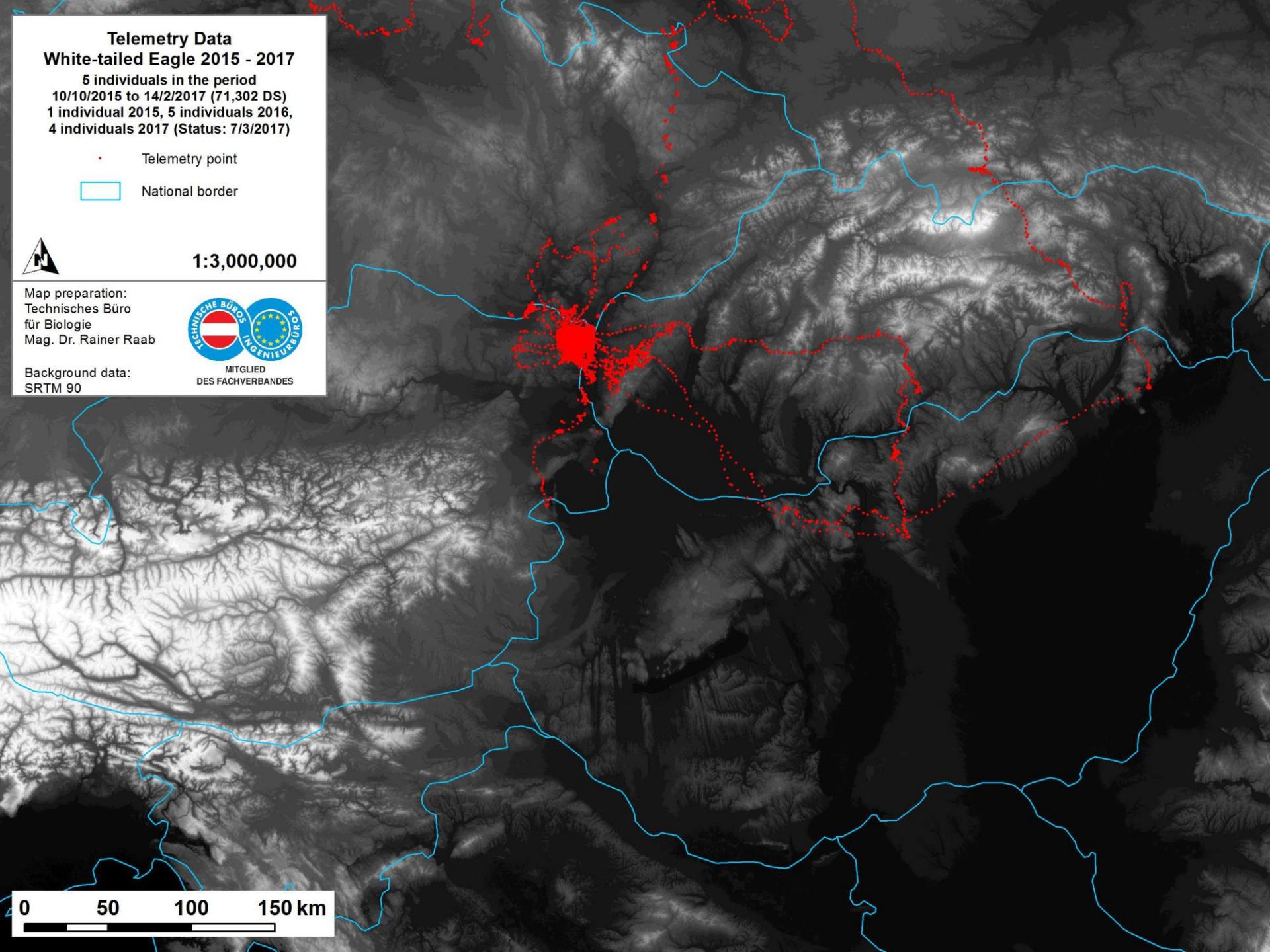
1:3,000,000

Map preparation:
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für Biologie
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Background data:
SRTM 90

0 50 100 150 km



Telemetry Data

White-tailed Eagle 2015 - 2017

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1:1,500,000



Map preparation:
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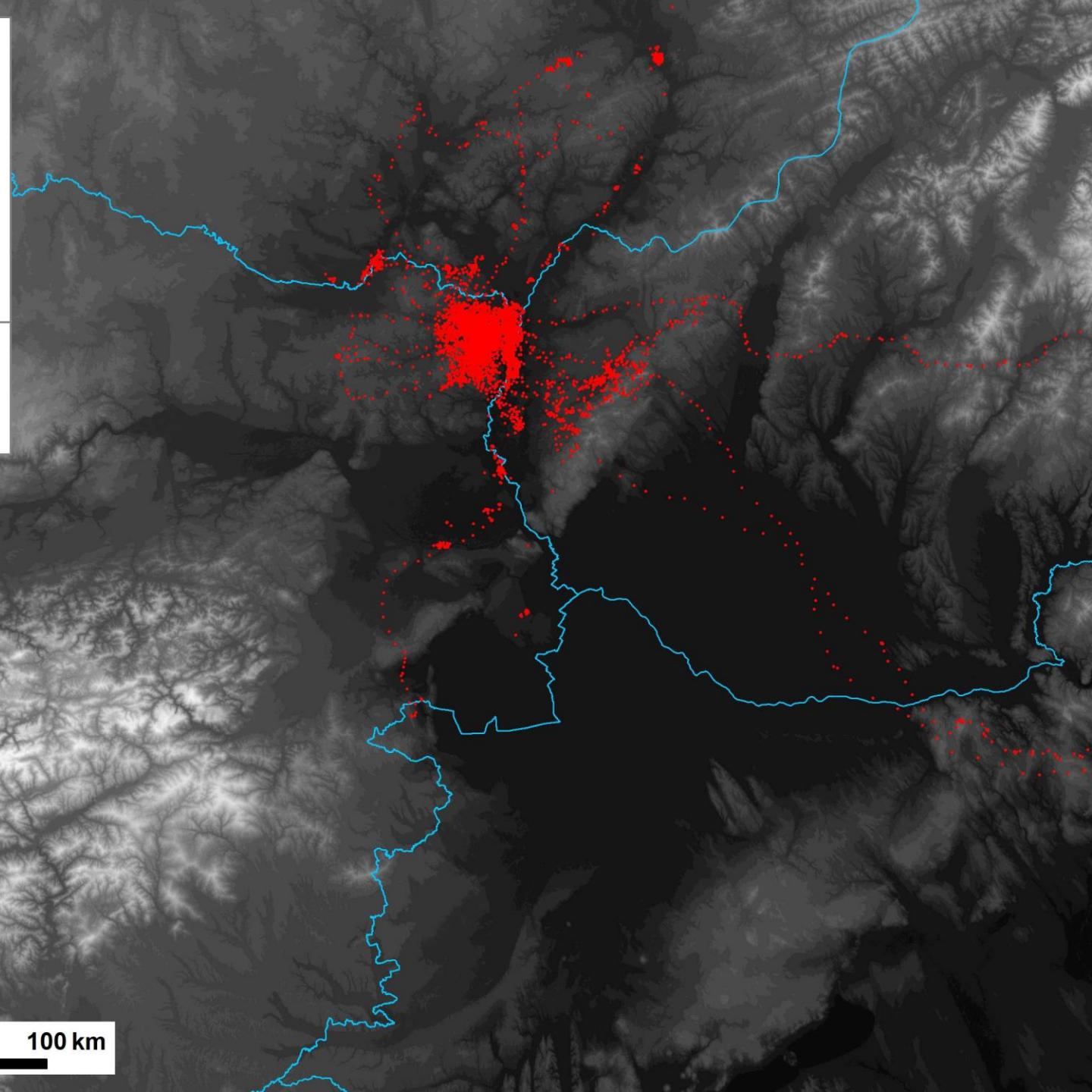


Background data:
SRTM 90

0

50

100 km



Imperial Eagle (*Aquila heliaca*)



Photo: F. Kovacs

Photo: G. Rotheneder

Imperial Eagle
(Aquila heliaca)





Imperial Eagle
(*Aquila heliaca*)

Photo: F. Kovacs



Imperial Eagle
(*Aquila heliaca*)

Photo: R. Katzinger



Imperial Eagle
(*Aquila heliaca*)

Photo: R. Katzinger

Imperial Eagle
(*Aquila heliaca*)



Photo: R. Katzinger

Imperial Eagle
(*Aquila heliaca*)

Photo: J. Chavko



**Imperial Eagle Telemetry
Overview Tagging
A, SK and HU**



Tagging areas Imperial Eagle
2016 and 2017



1:1,100,000

Map preparation
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Background data:
Basemap

2016: 1 fledgling



2016: 2 fledglings



2016: 2 fledglings



2016: 1 fledgling



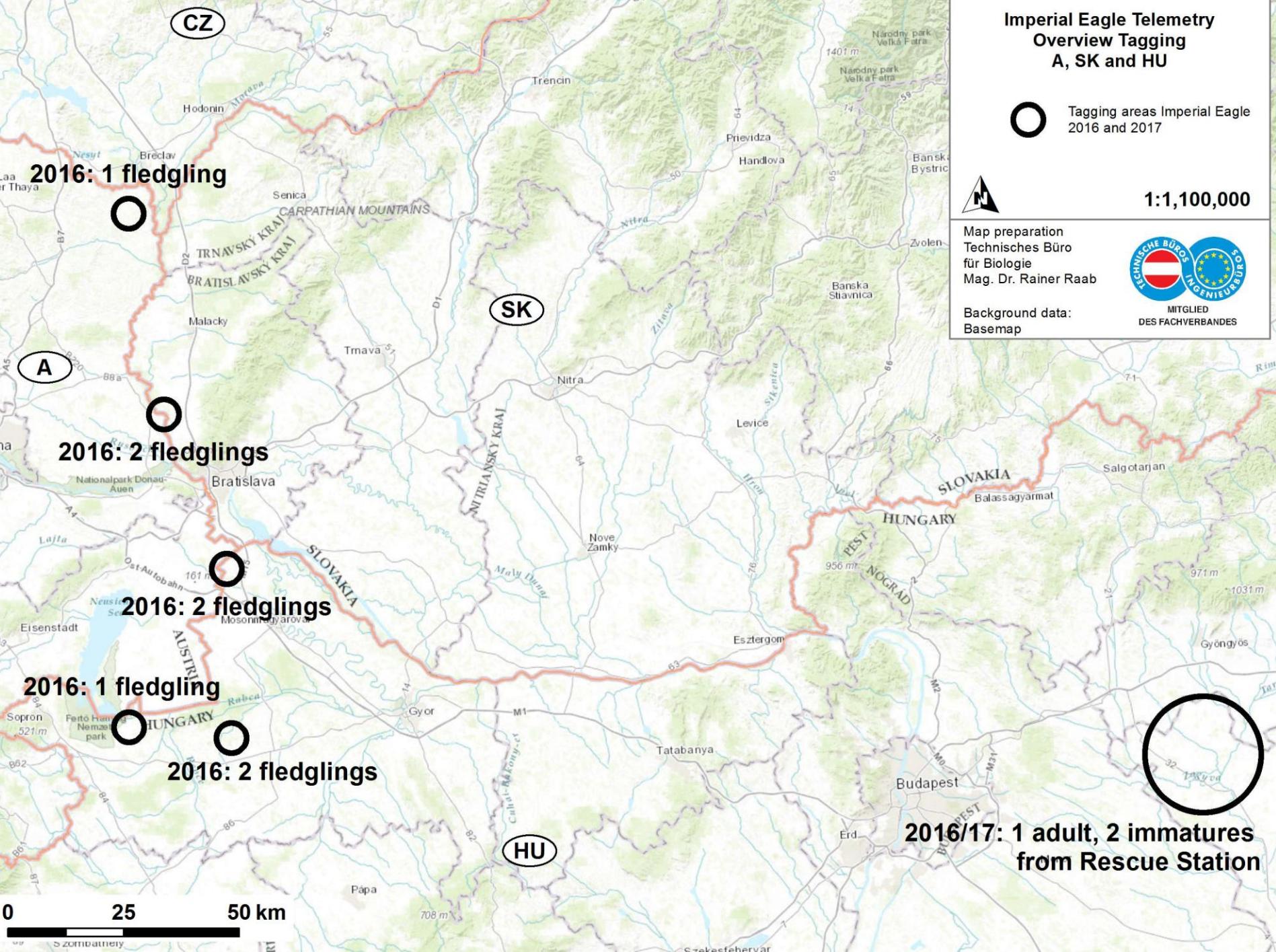
2016: 2 fledglings



**2016/17: 1 adult, 2 immatures
from Rescue Station**

CZ

Martin Ruzomberok



0

25

50 km

Telemetry Data

Imperial Eagle 2016 - 2017

9 individuals in the period
23/6/2016 to 26/2/2017 (196,193 DS)
8 individuals 2016, 5 individuals 2017
(Status: 3/3/2017)

• Telemetry point

■ National border

1:12,000,000

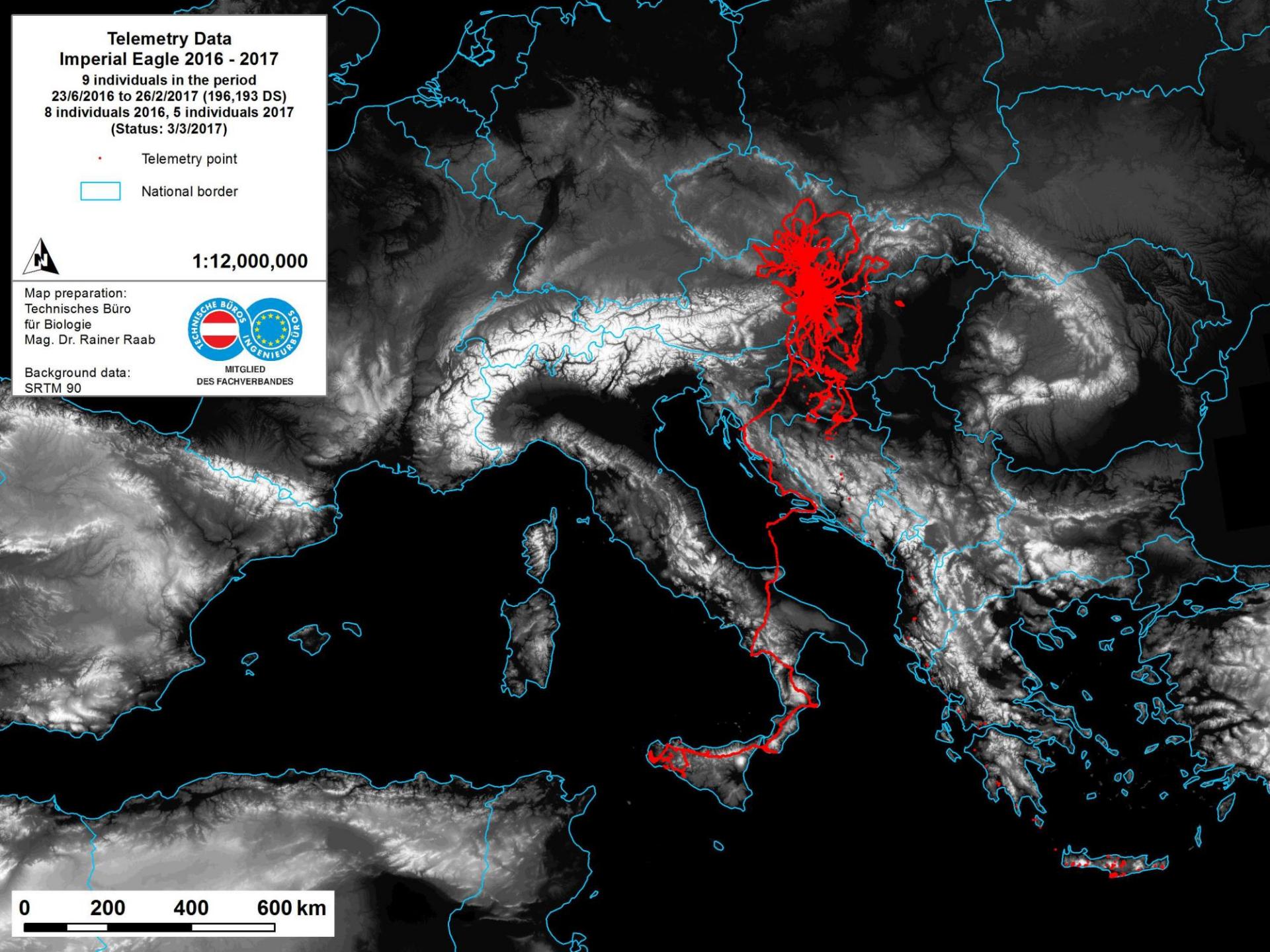


Map preparation:
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Background data:
SRTM 90

0 200 400 600 km



Telemetry Data

Imperial Eagle 2016 - 2017

9 individuals in the period
23/6/2016 to 26/2/2017 (196,193 DS)
8 individuals 2016, 5 individuals 2017
(Status: 3/3/2017)

• Telemetry point

■ National border

1:3,000,000

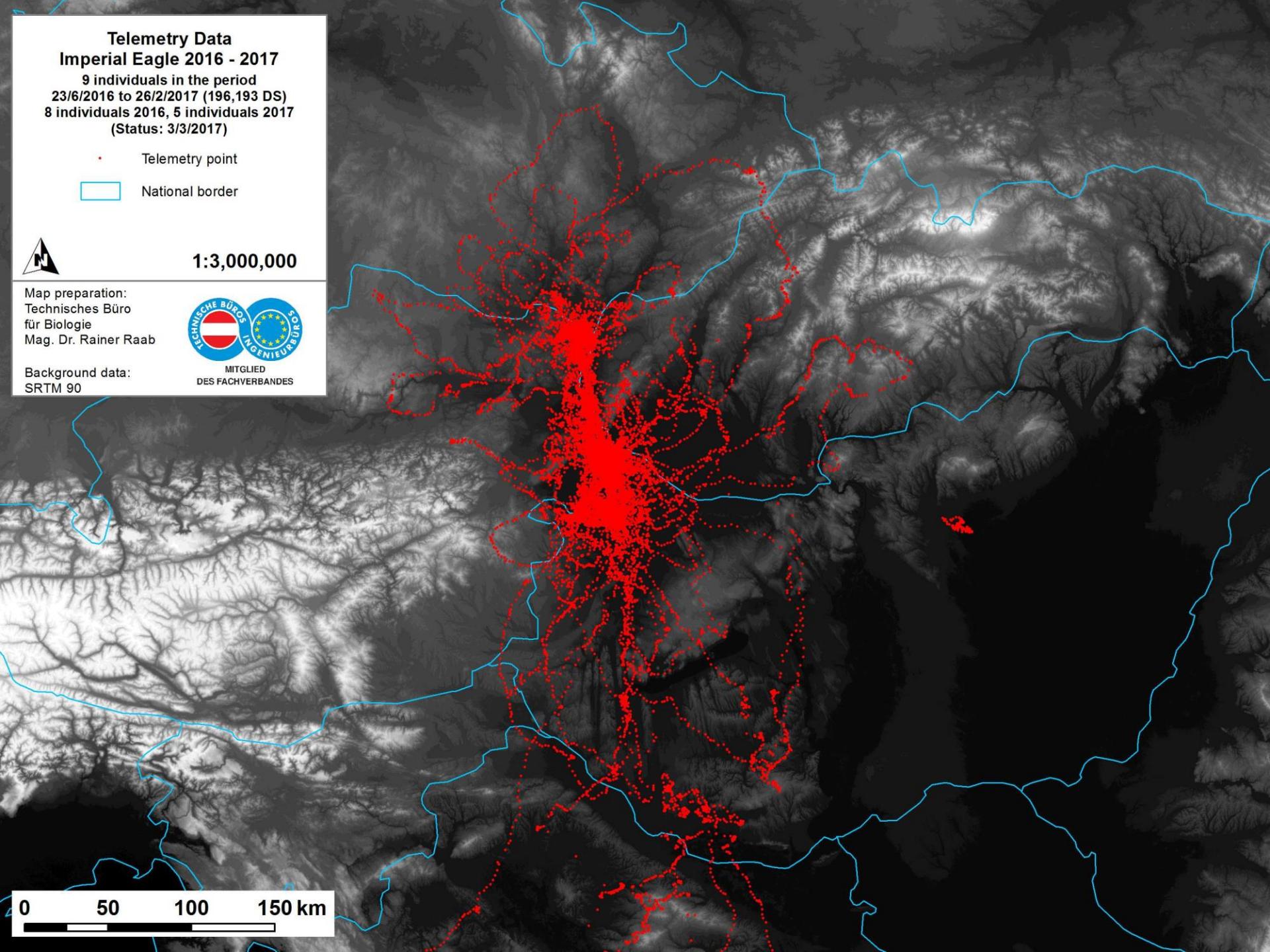


Map preparation:
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Background data:
SRTM 90

0 50 100 150 km



Telemetry Data

Imperial Eagle 2016 - 2017

9 individuals in the period
23/6/2016 to 26/2/2017 (196,193 DS)
8 individuals 2016, 5 individuals 2017
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• Telemetry point

National border

1:1,500,000



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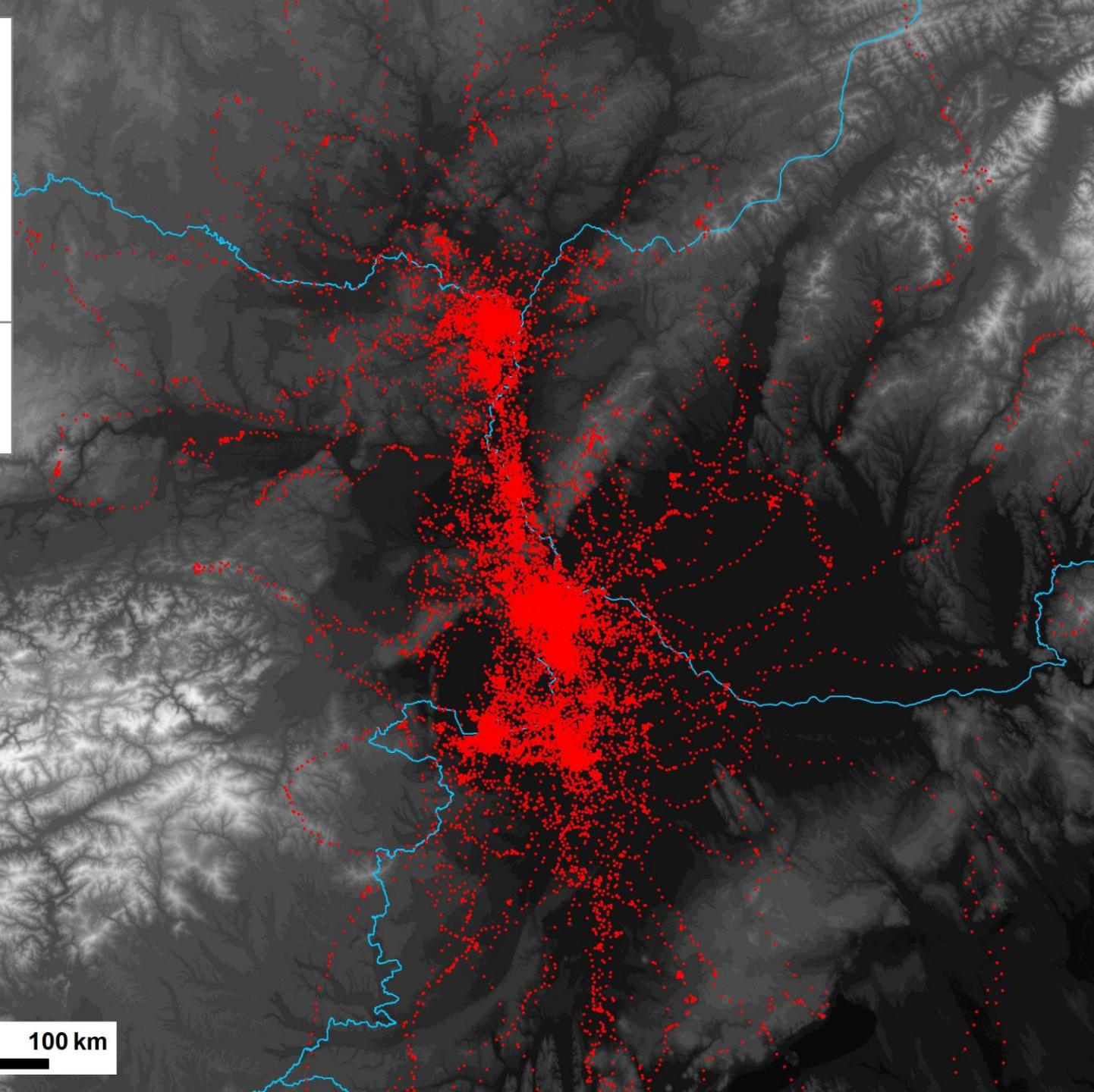


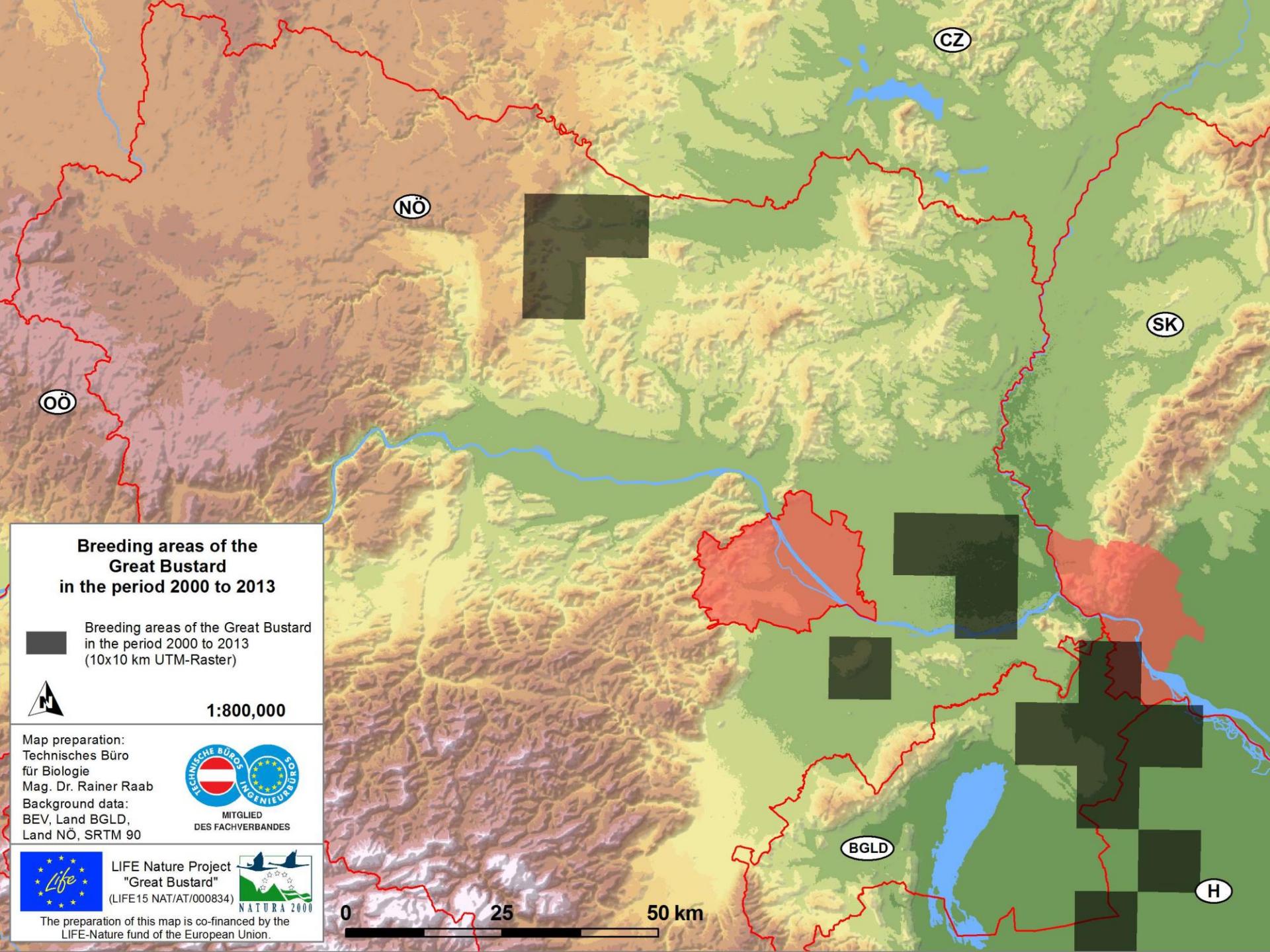
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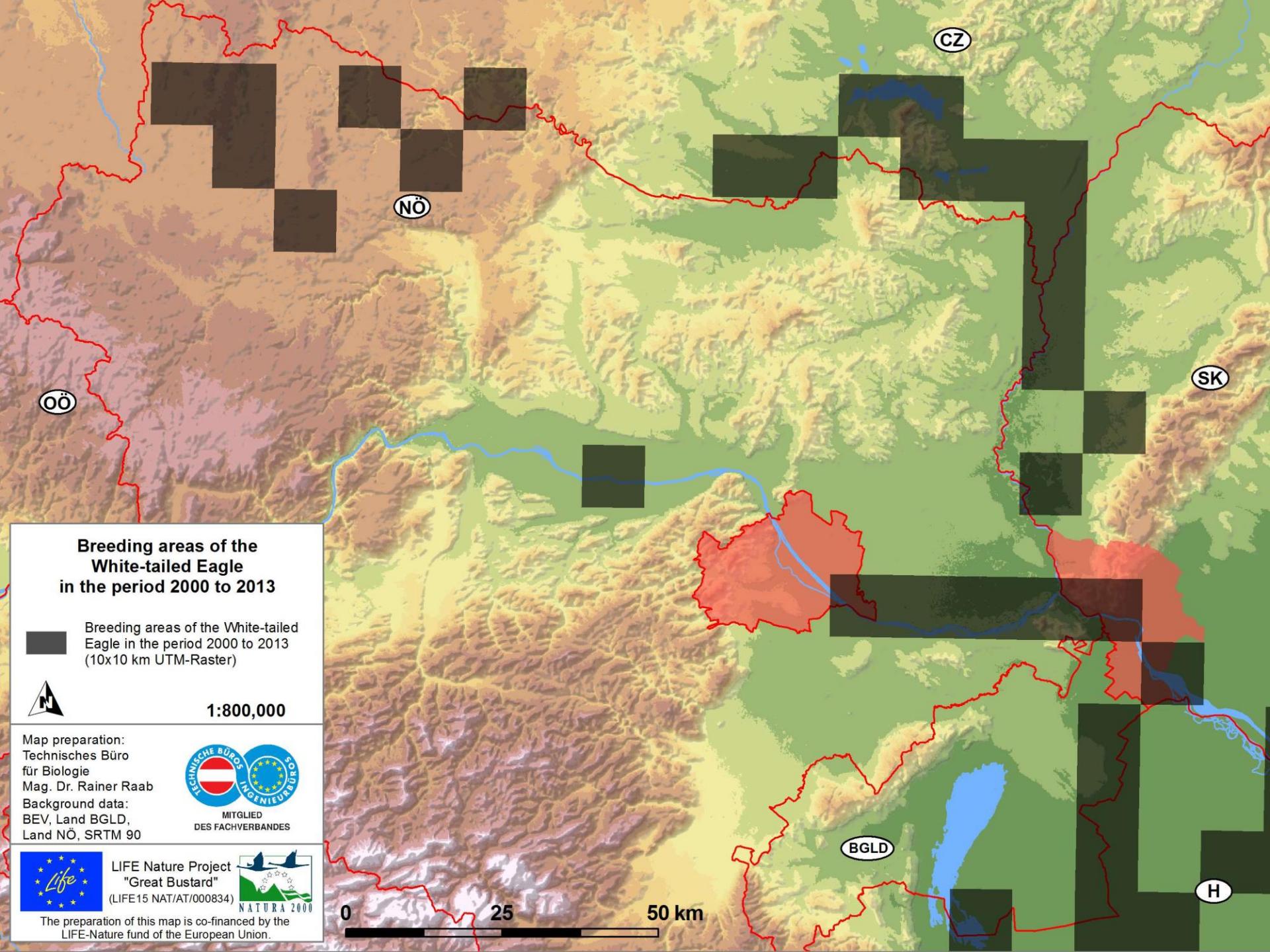
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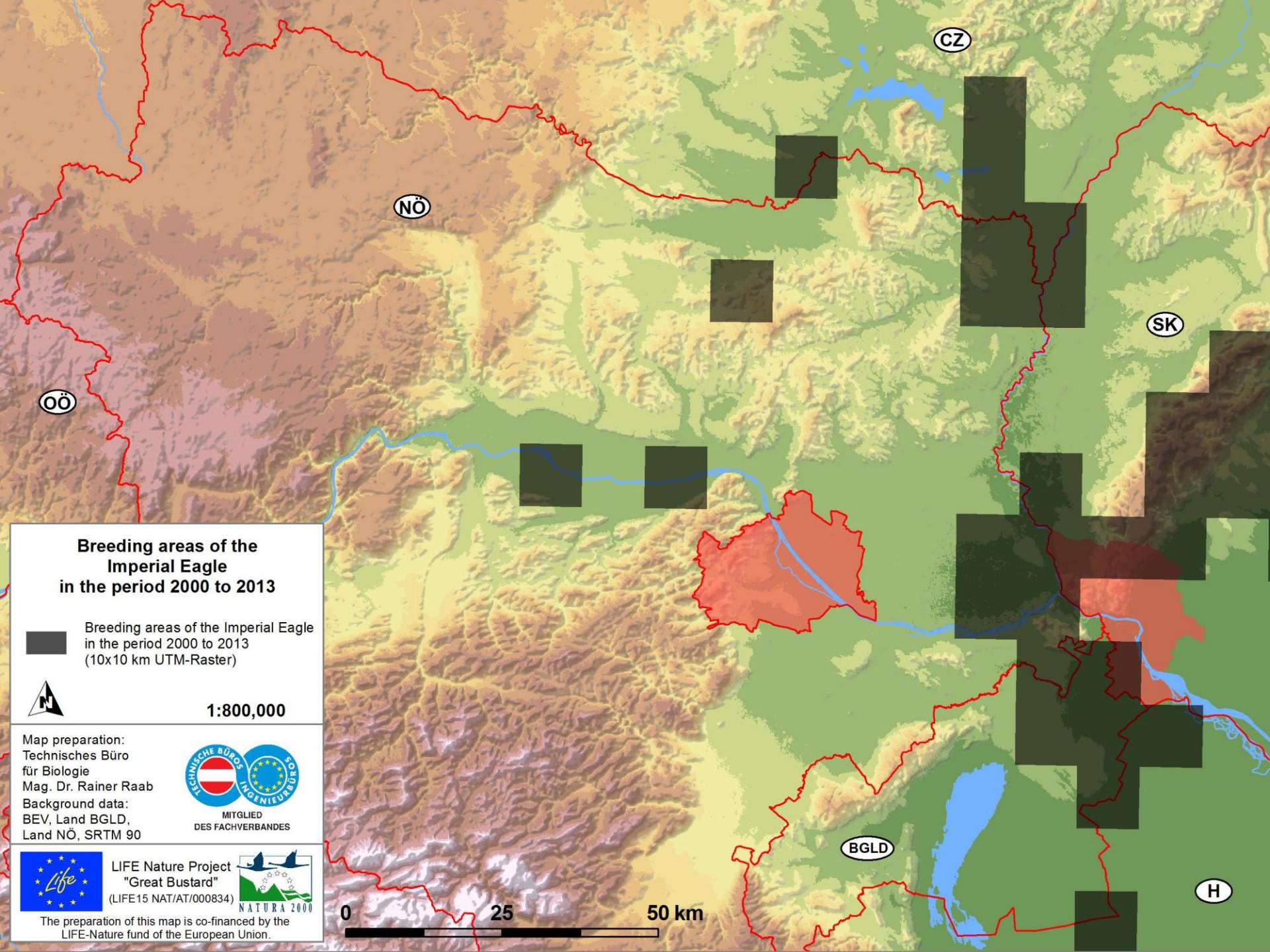
50

100 km











Preliminary results from an project area on the border AT/HU/SK

**Great Bustard observations
from July until December
in the period
1/1/2005 to 31/12/2016**

● Great Bustard observations from July
until December in the period
1/1/2005 to 31/12/2016

■ Natura 2000 Special Protection Area

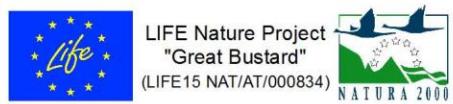
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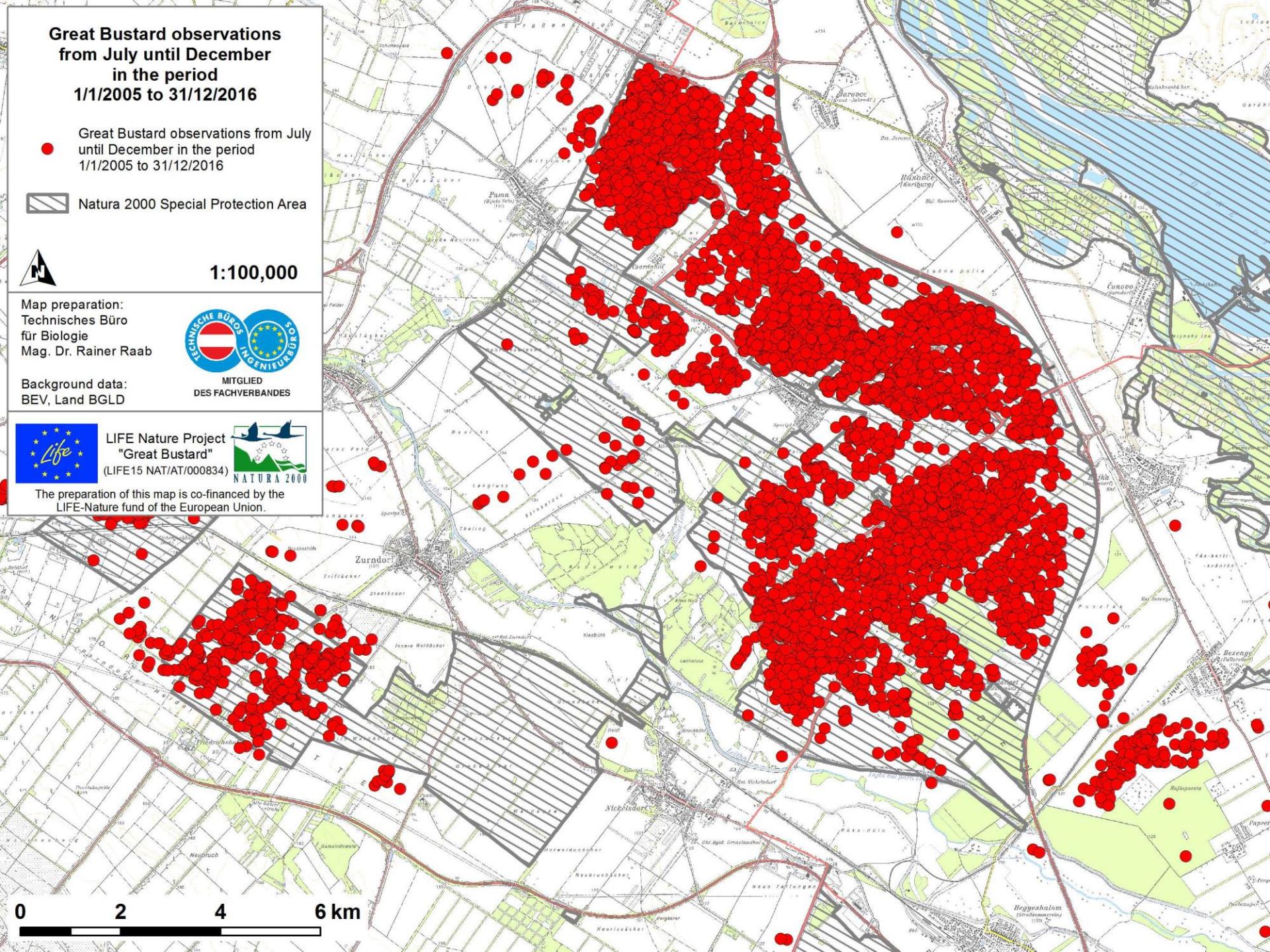


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Background data:
BEV, Land BGDL



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0 2 4 6 km

Great Bustard observations in the period 1/7/2016 to 31/12/2016

● Great Bustard observations
in the period 1/7/2016 to 31/12/2016

■ Natura 2000 Special Protection Area

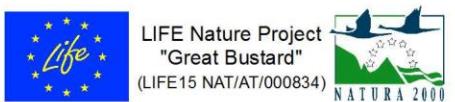


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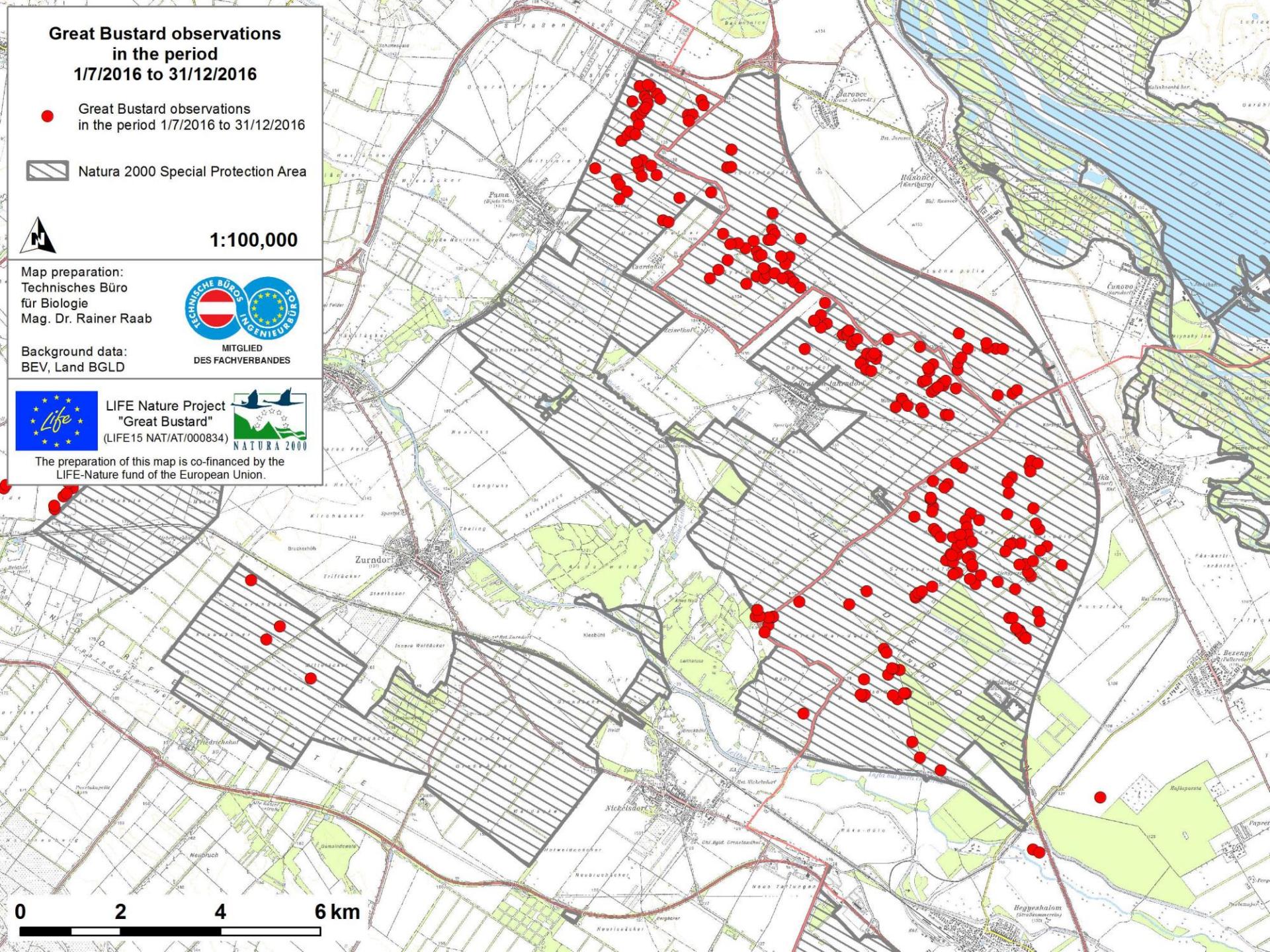
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Mag. Dr. Rainer Raab



Background data:
BEV, Land BG LD



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0 2 4 6 km

White-tailed eagle observations in the period 1/1/2005 to 31/12/2016

● White-tailed eagle observations in the period 1/1/2005 to 31/12/2016

● White-tailed eagle telemetry data in the period 1/1/2016 to 31/12/2016

■ Natura 2000 Special Protection Area

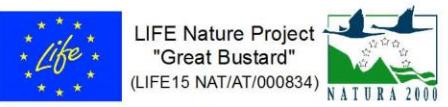
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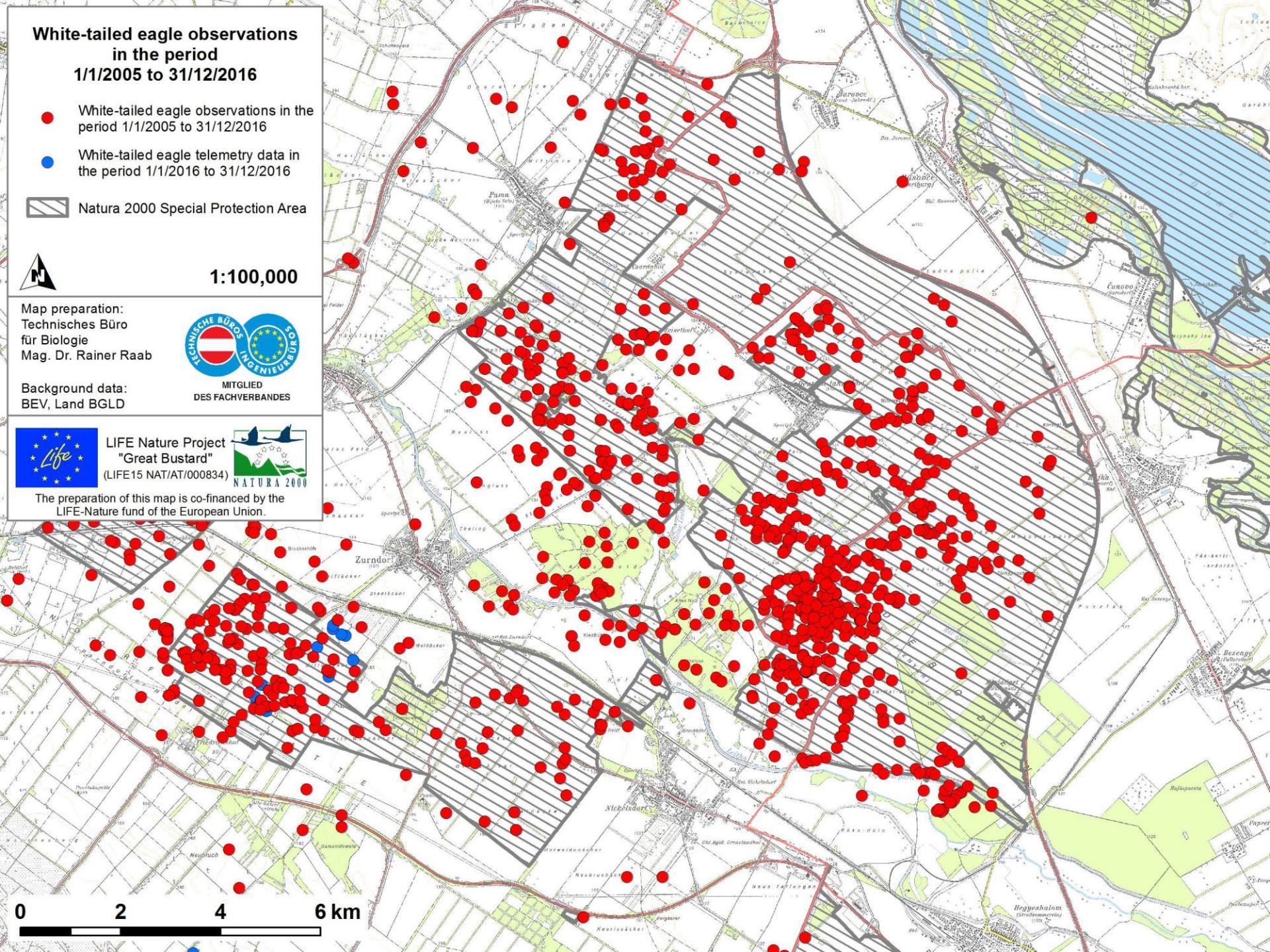


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DES FACHVERBANDES

Background data:
BEV, Land BG LD



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0 2 4 6 km

**White-tailed eagle observations
from July until December
in the period
1/1/2005 to 31/12/2016**

- White-tailed eagle observations from July until December in the period 1/1/2005 to 31/12/2016
- White-tailed eagle telemetry data from July until December in the period 1/1/2016 to 31/12/2016

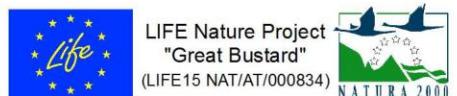
 Natura 2000 Special Protection Area

1:100,000

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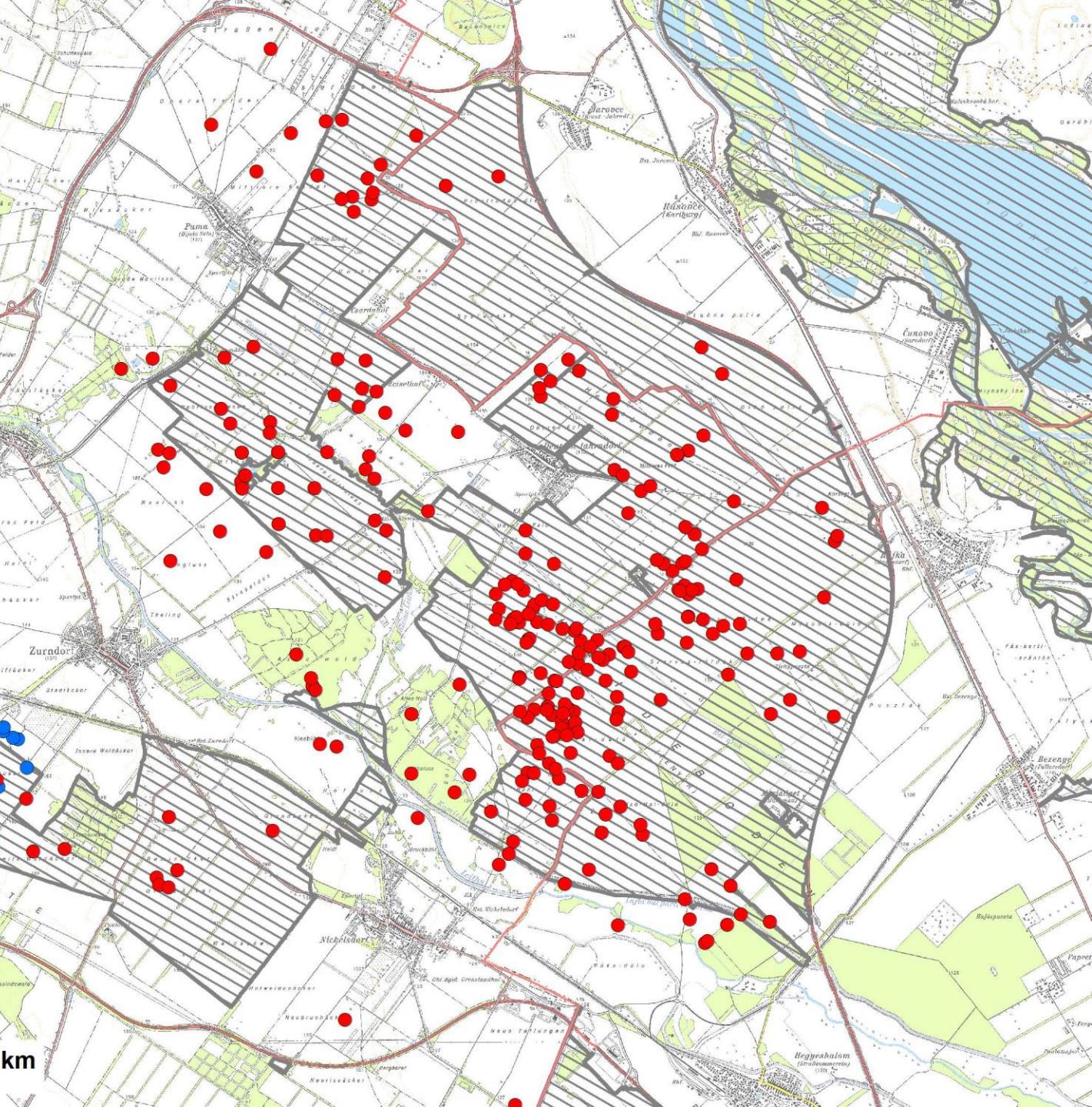


Background data:
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0 2 4 6 km



White-tailed eagle observations in the period 1/7/2016 to 31/12/2016

- White-tailed eagle observations
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- White-tailed eagle telemetry data in
the period 1/7/2016 to 31/12/2016

■ Natura 2000 Special Protection Area

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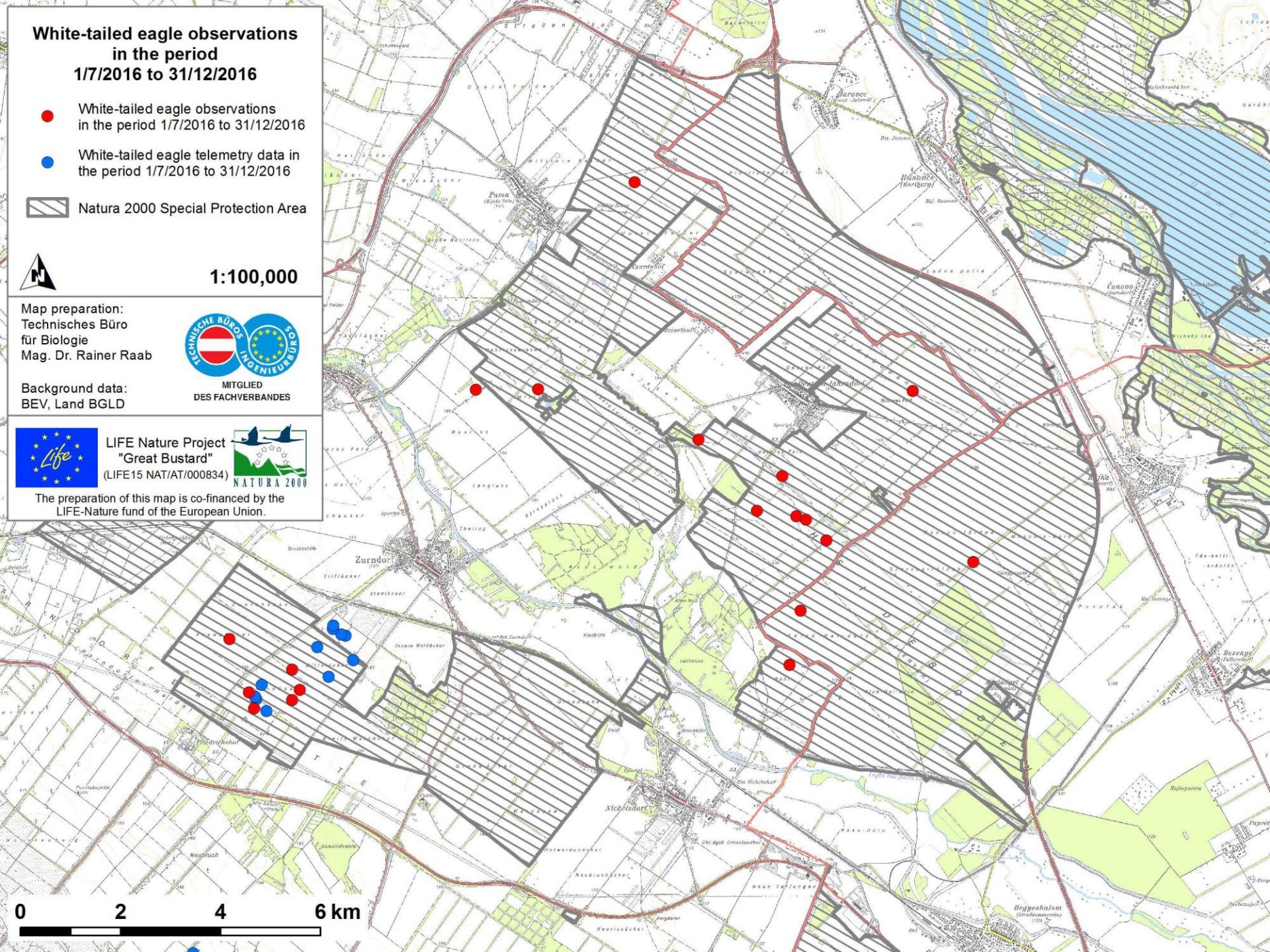


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0 2 4 6 km

Imperial eagle observations in the period 1/1/2005 to 31/12/2016

- Imperial eagle observations in the period 1/1/2005 to 31/12/2016
 - Imperial eagle telemetry data in the period 1/1/2016 to 31/12/2016
-  Natura 2000 Special Protection Area

1:100,000

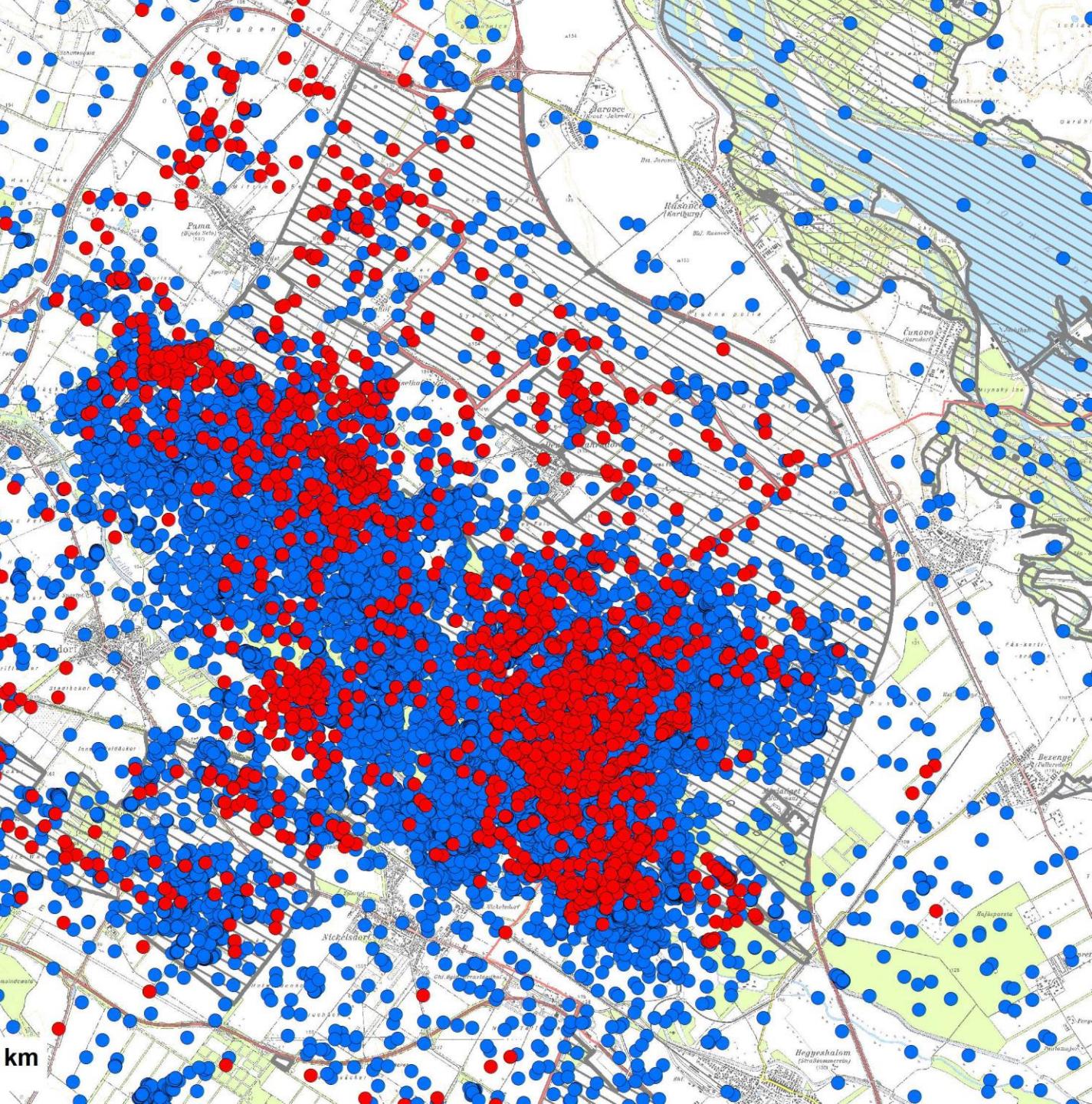
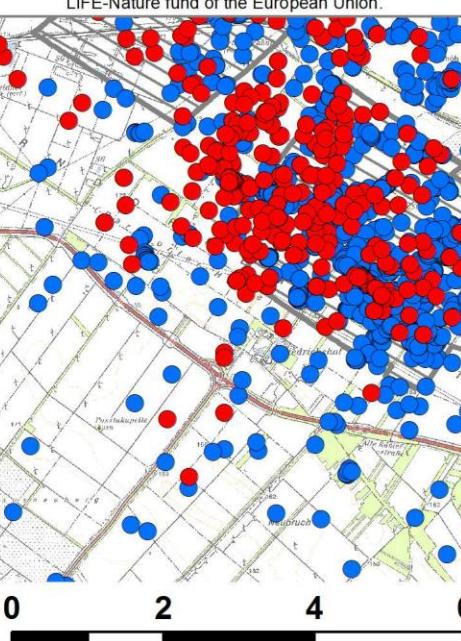
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■ Natura 2000 Special Protection Area



1:100,000

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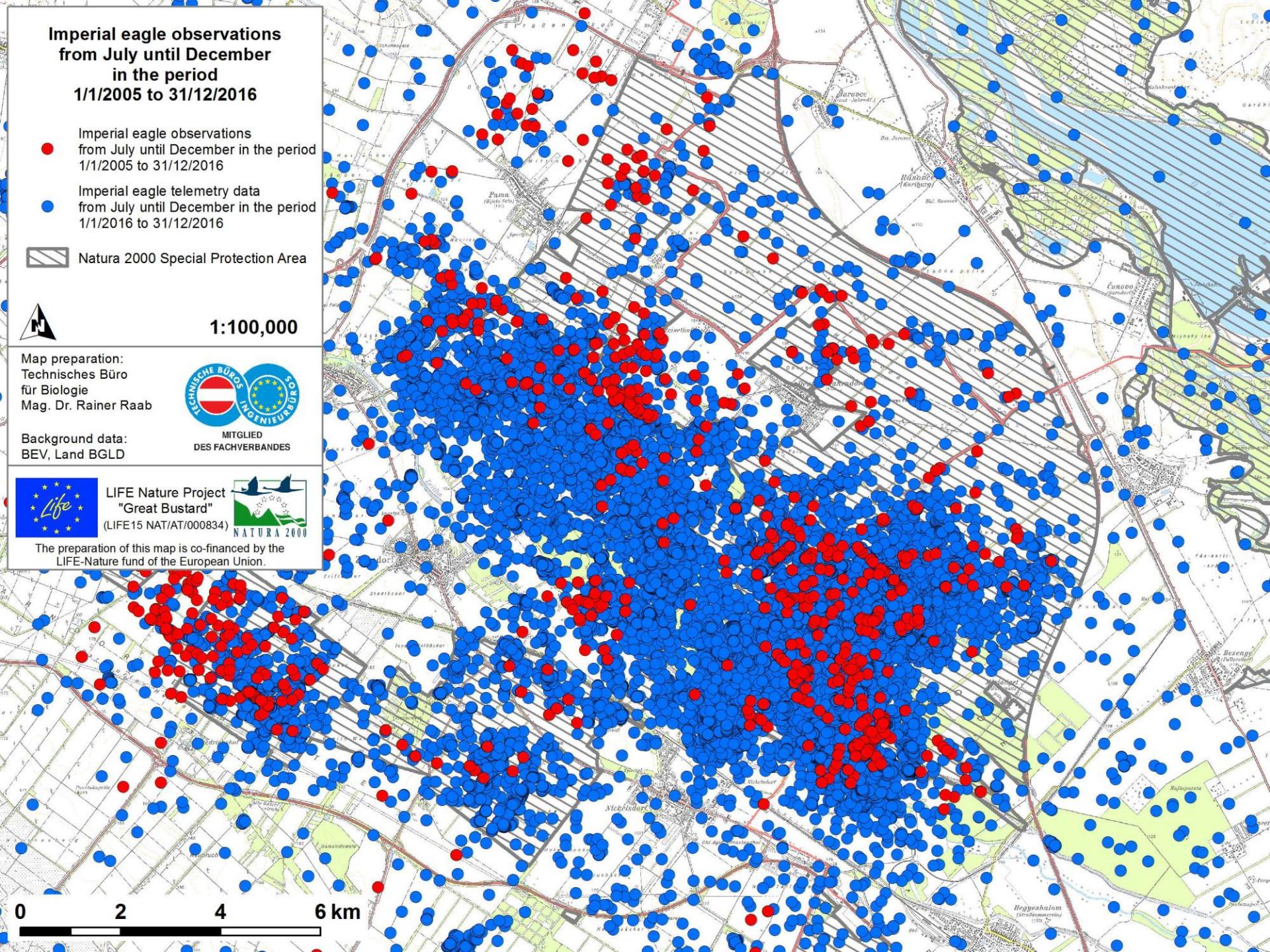


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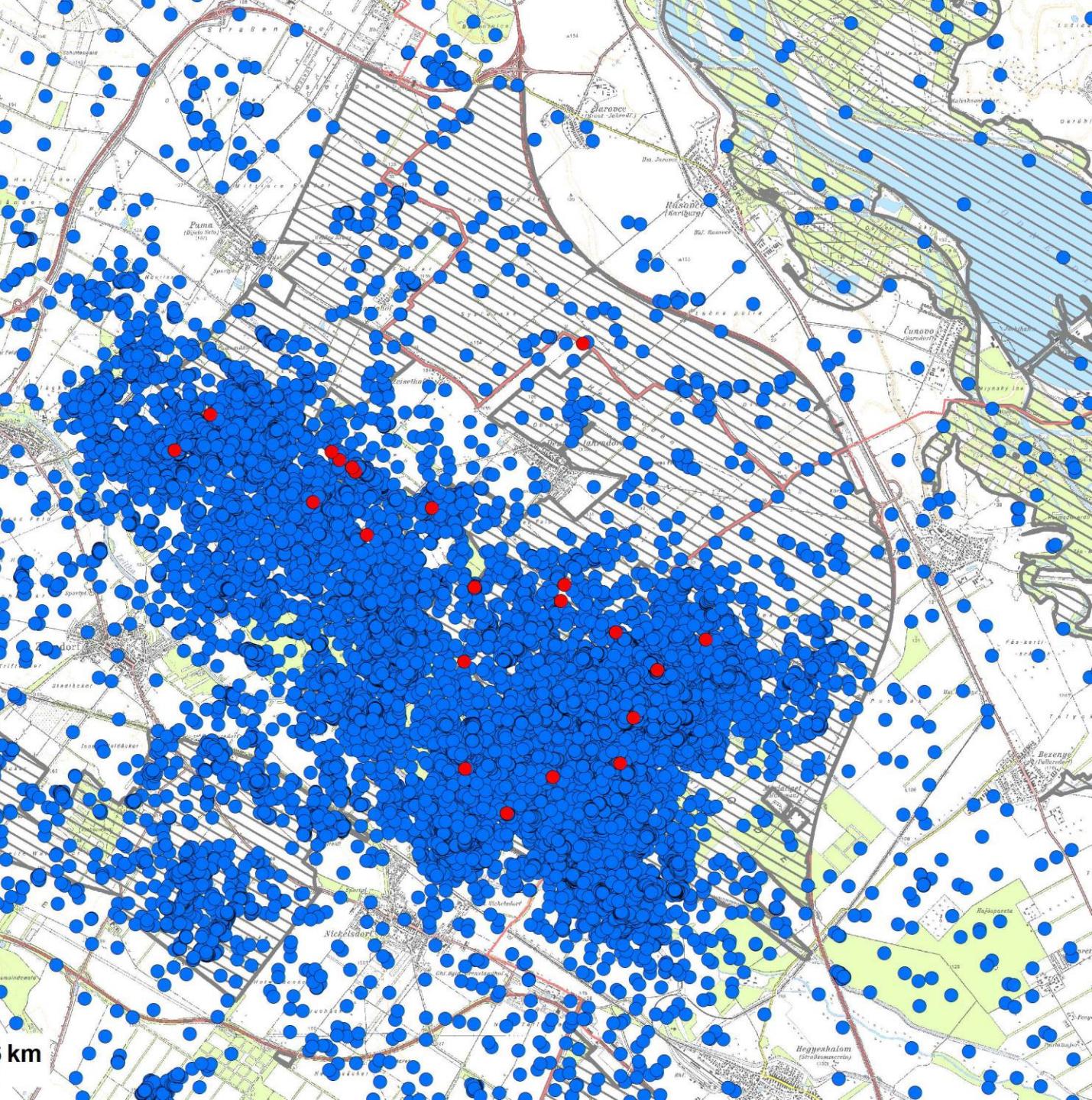
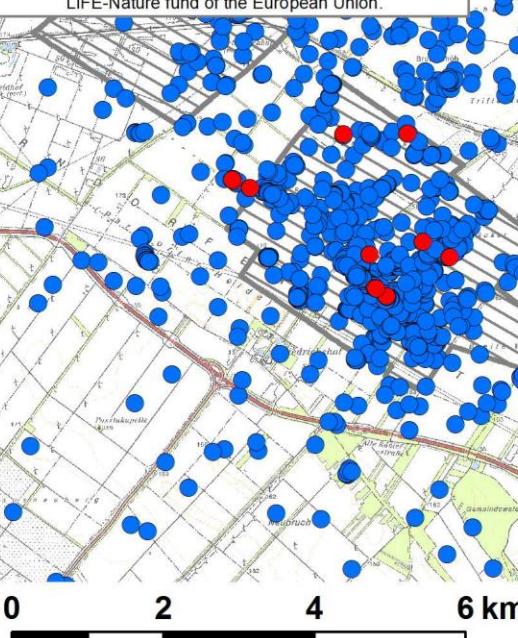


MITGLIED
DES FACHVERBANDES

Background data:
BEV, Land BG LD



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Great Bustard and Imperial Eagle observations in the year 2007

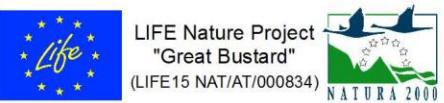
- Great Bustard breeding place 2007
 - Great Bustard observations in the period 1/1/2007 to 31/12/2007
 - Imperial Eagle observations in the period 1/1/2007 to 31/12/2007
- Natura 2000 Special Protection Area

1:100,000

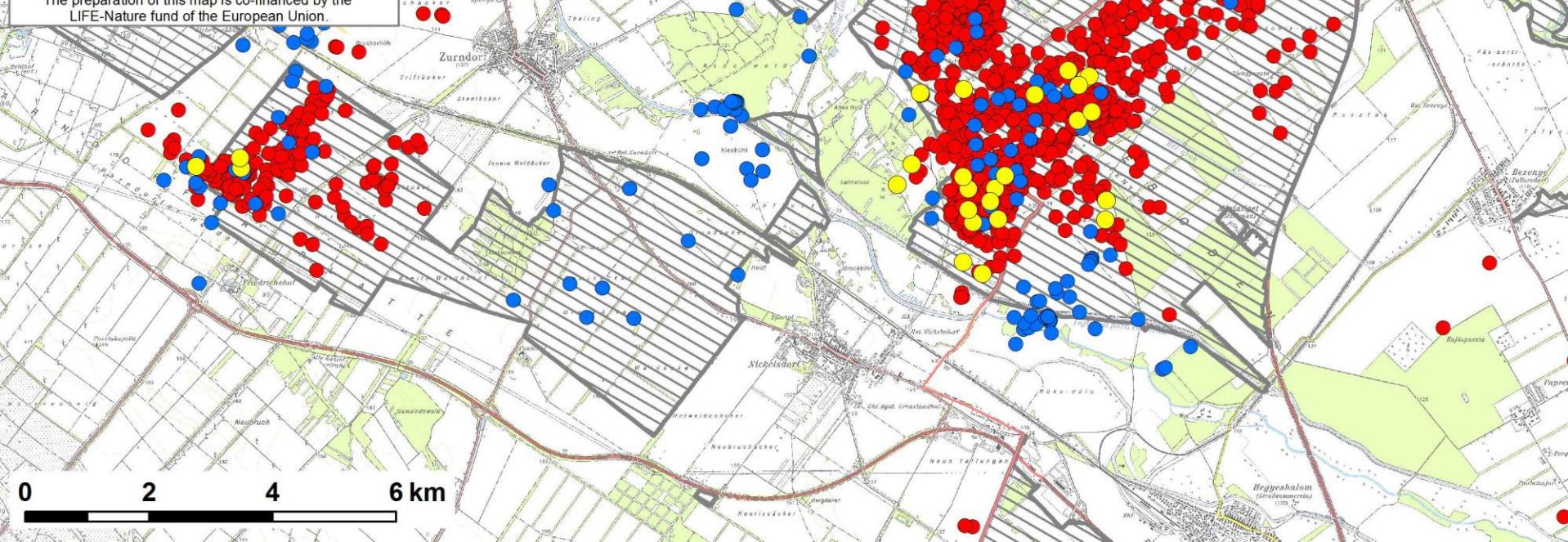
Map preparation:
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für Biologie
Mag. Dr. Rainer Raab



Background data:
BEV, Land BG LD



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0 2 4 6 km

Great Bustard and Imperial Eagle observations in the year 2013

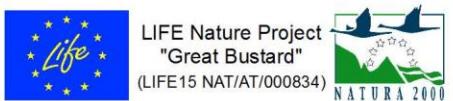
- Great Bustard breeding place 2013
- Great Bustard observations in the period 1/1/2013 to 31/12/2013
- Imperial Eagle observations in the period 1/1/2013 to 31/12/2013
- Natura 2000 Special Protection Area

1:100,000

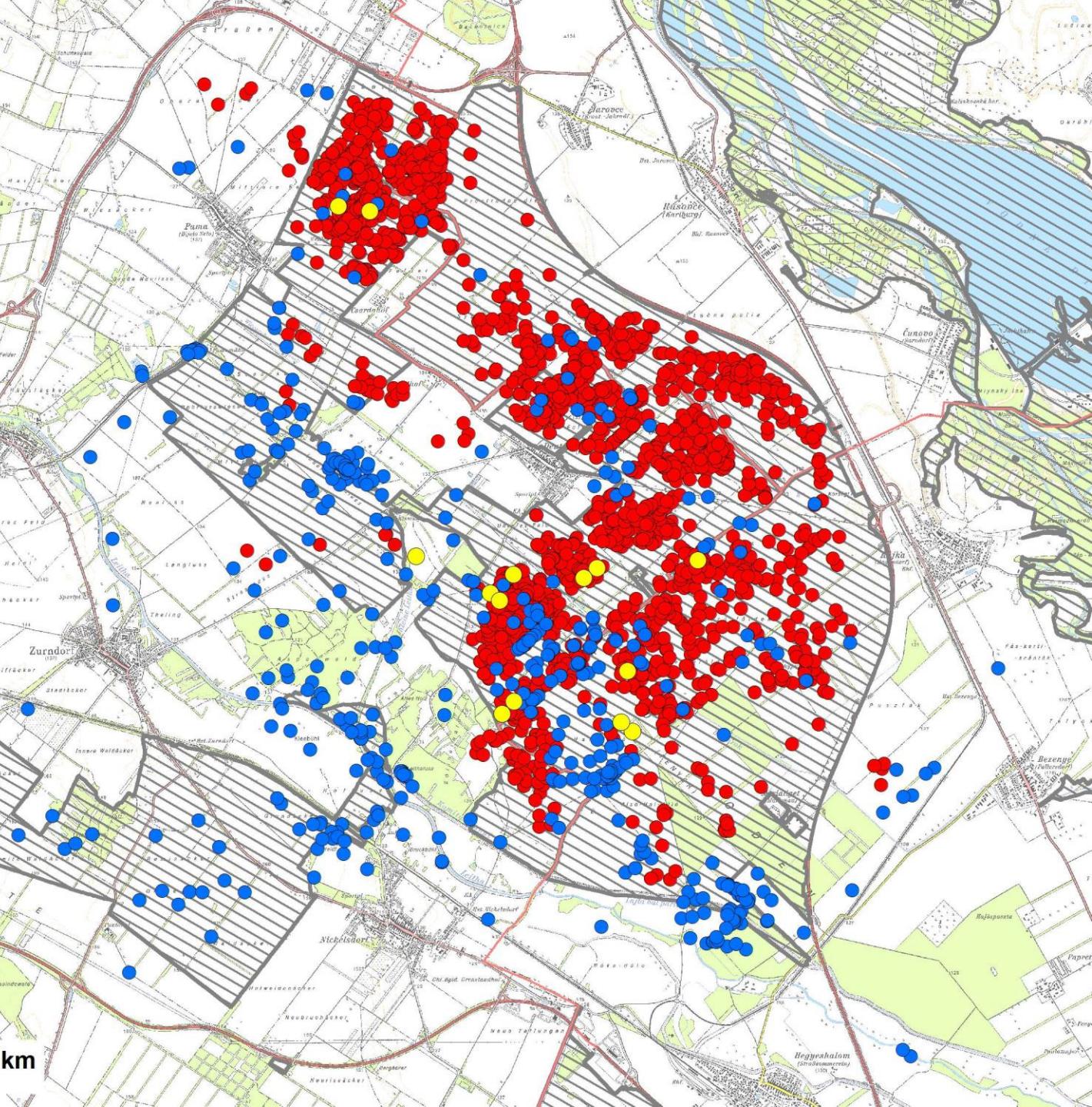
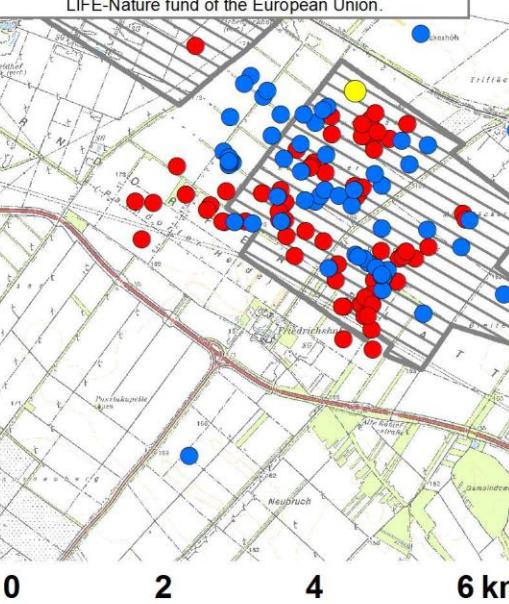
Map preparation:
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Mag. Dr. Rainer Raab



Background data:
BEV, Land BG LD



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**Great Bustard observations
and Imperial Eagle telemetry data
in the period
1/7/2016 to 31/12/2016**

- Great Bustard observations in the period 1/7/2016 to 31/12/2016
- Imperial Eagle observations in the period 1/7/2016 to 31/12/2016
- Imperial Eagle telemetry data in the period 1/7/2016 to 31/12/2016

 Natura 2000 Special Protection Area

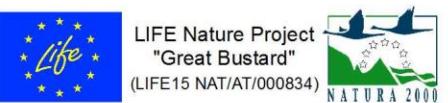
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Map preparation:
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Mag. Dr. Rainer Raab

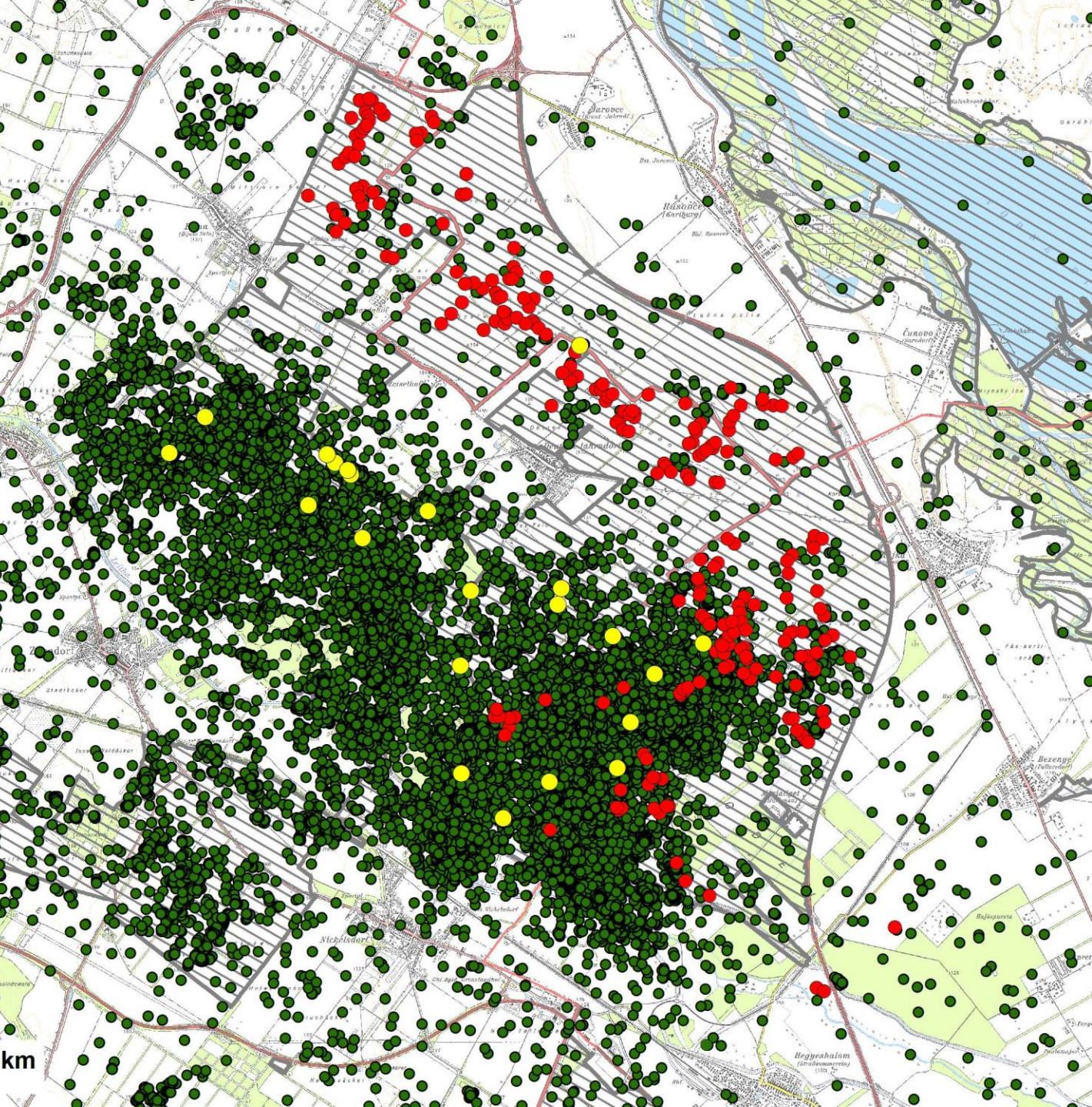
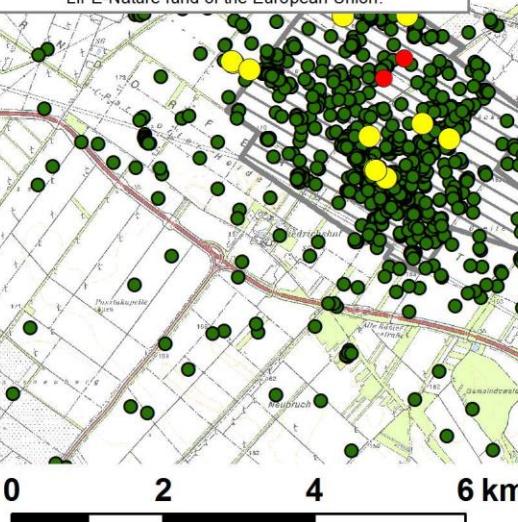


MITGLIED
DES FACHVERBANDES

Background data:
BEV, Land BG LD



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Preliminary results from an project area on the border AT/HU



Great Bustard observations in the period 1/1/2005 to 31/12/2016

● Great Bustard observations in the period 1/1/2005 to 31/12/2016

■ Natura 2000 Special Protection Area

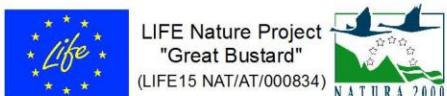


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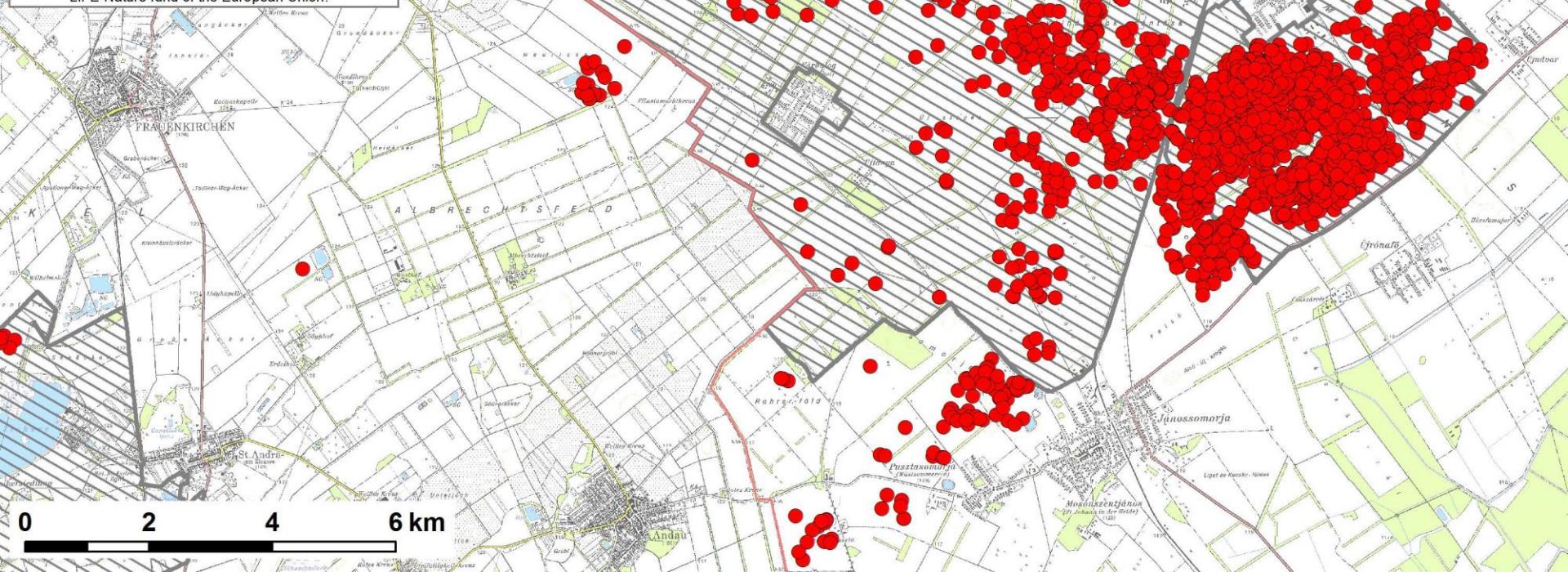
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Background data:
BEV, Land BGKD



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**Great Bustard observations
from July until December
in the period
1/1/2005 to 31/12/2016**

● Great Bustard observations from July
until December in the period
1/1/2005 to 31/12/2016

■ Natura 2000 Special Protection Area

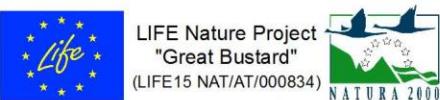
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Map preparation:
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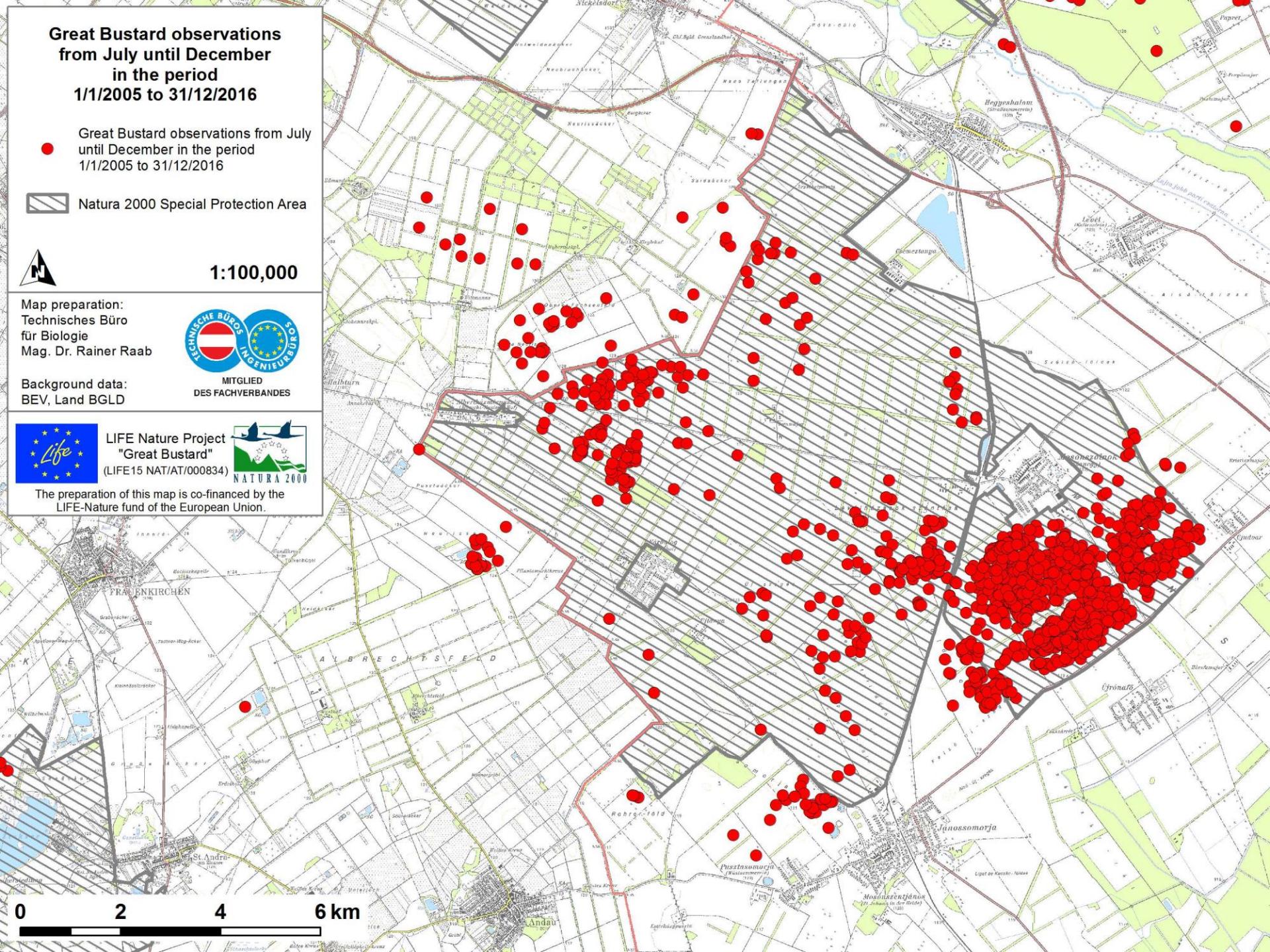


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DES FACHVERBANDES

Background data:
BEV, Land BGDL



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0 2 4 6 km

Great Bustard observations in the period 1/7/2016 to 31/12/2016

● Great Bustard observations
in the period 1/7/2016 to 31/12/2016

■ Natura 2000 Special Protection Area



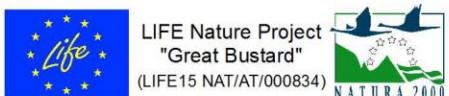
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Map preparation:
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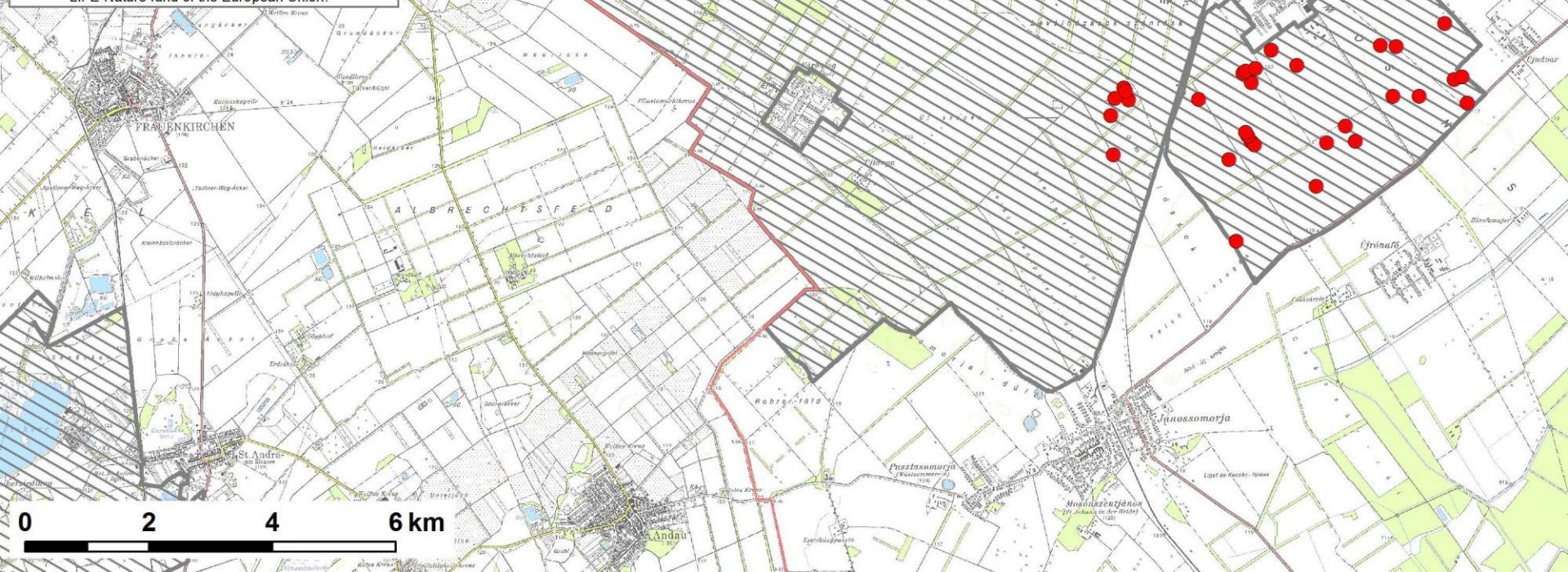


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DES FACHVERBANDES

Background data:
BEV, Land BG LD



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White-tailed eagle observations in the period 1/1/2005 to 31/12/2016

● White-tailed eagle observations in the period 1/1/2005 to 31/12/2016

● White-tailed eagle telemetry data in the period 1/1/2016 to 31/12/2016

■ Natura 2000 Special Protection Area

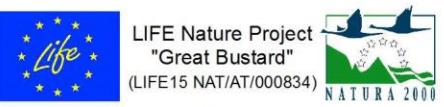


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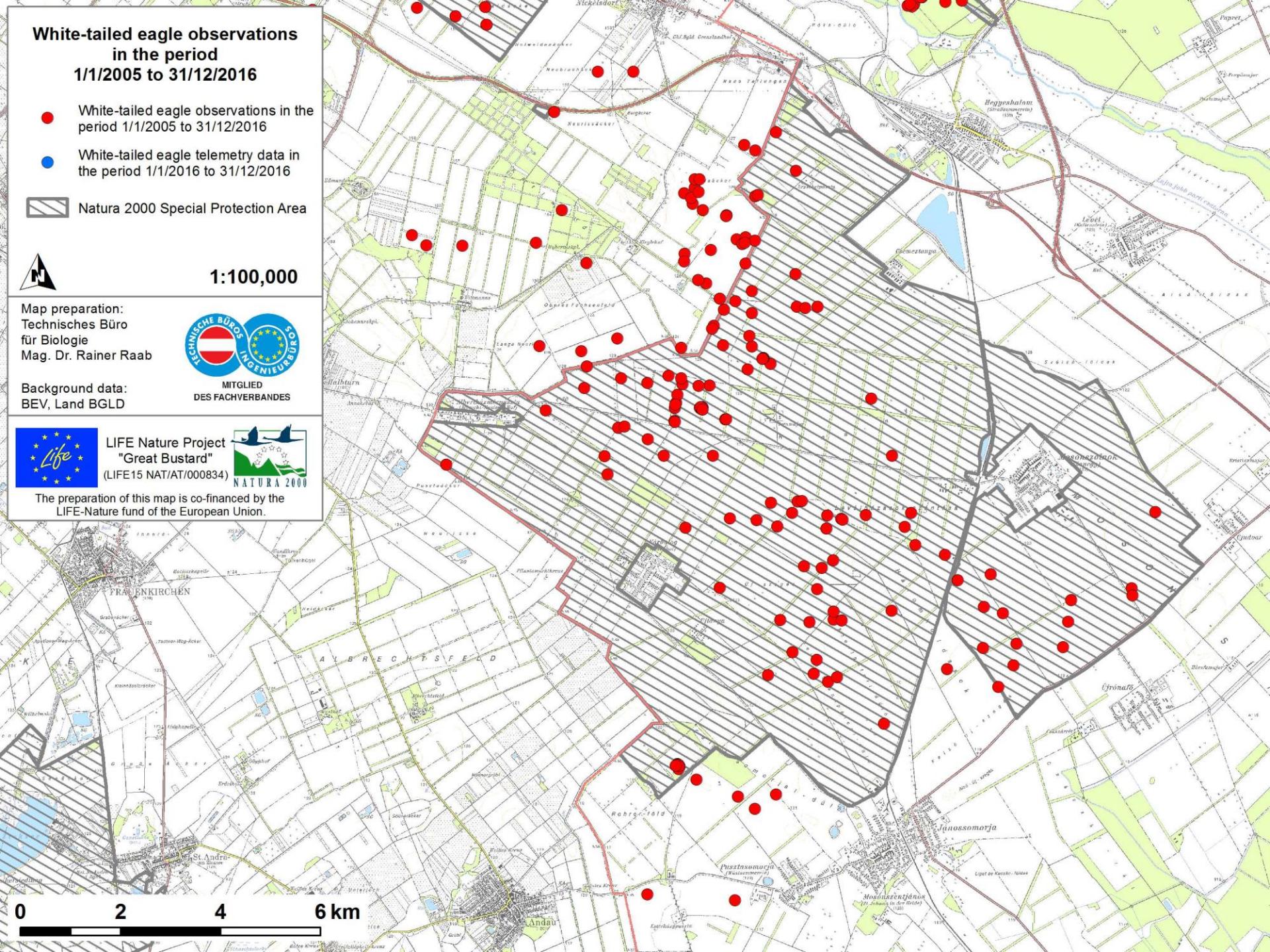
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Mag. Dr. Rainer Raab



Background data:
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**White-tailed eagle observations
from July until December
in the period
1/1/2005 to 31/12/2016**

- White-tailed eagle observations from July until December in the period 1/1/2005 to 31/12/2016
- White-tailed eagle telemetry data from July until December in the period 1/1/2016 to 31/12/2016

■ Natura 2000 Special Protection Area

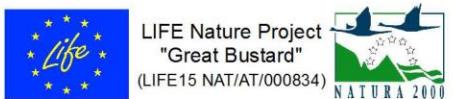


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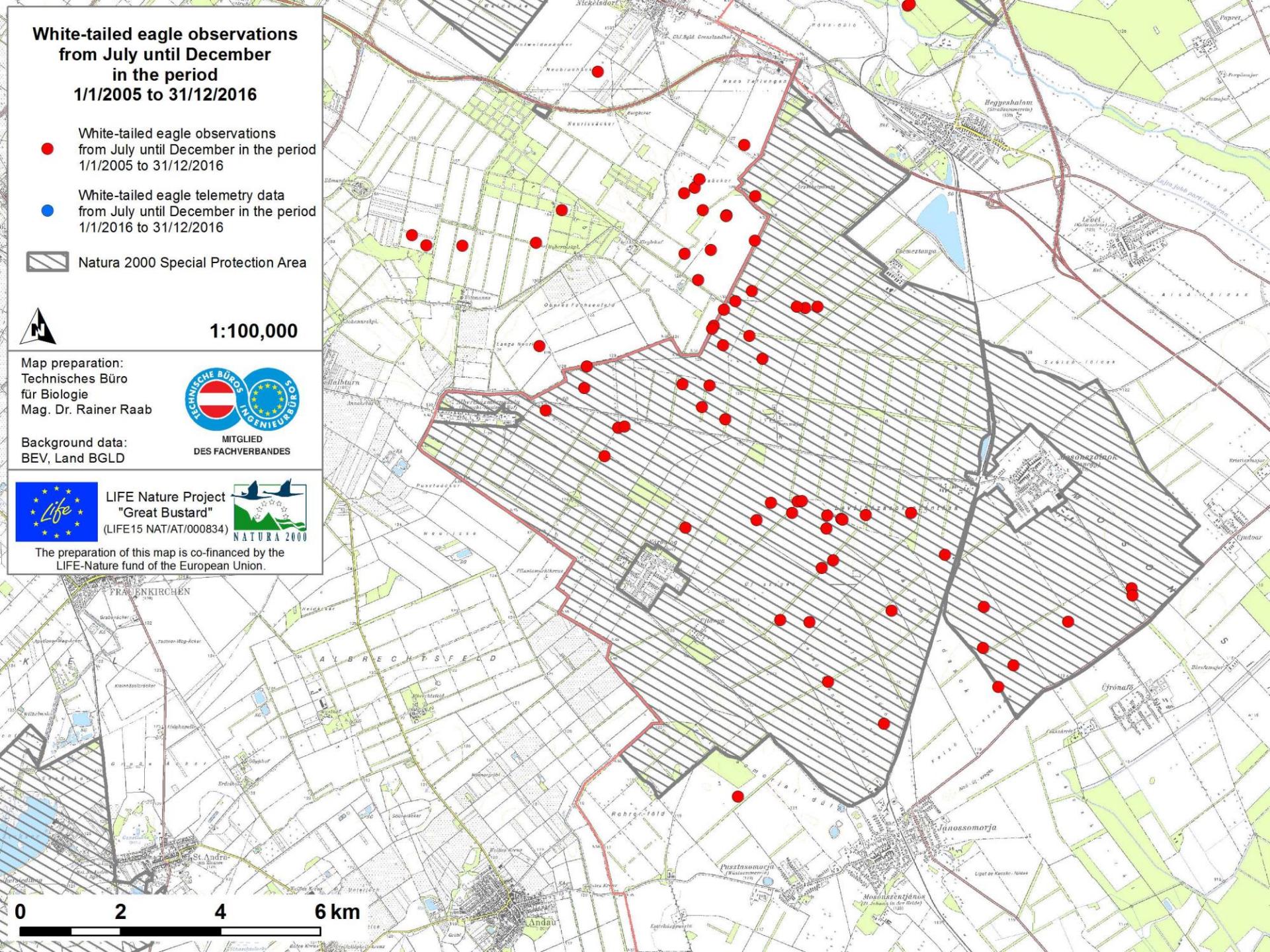
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Background data:
BEV, Land BGGL



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0 2 4 6 km

Imperial eagle observations in the period 1/1/2005 to 31/12/2016

- Imperial eagle observations in the period 1/1/2005 to 31/12/2016
- Imperial eagle telemetry data in the period 1/1/2016 to 31/12/2016

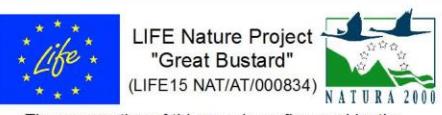
 Natura 2000 Special Protection Area

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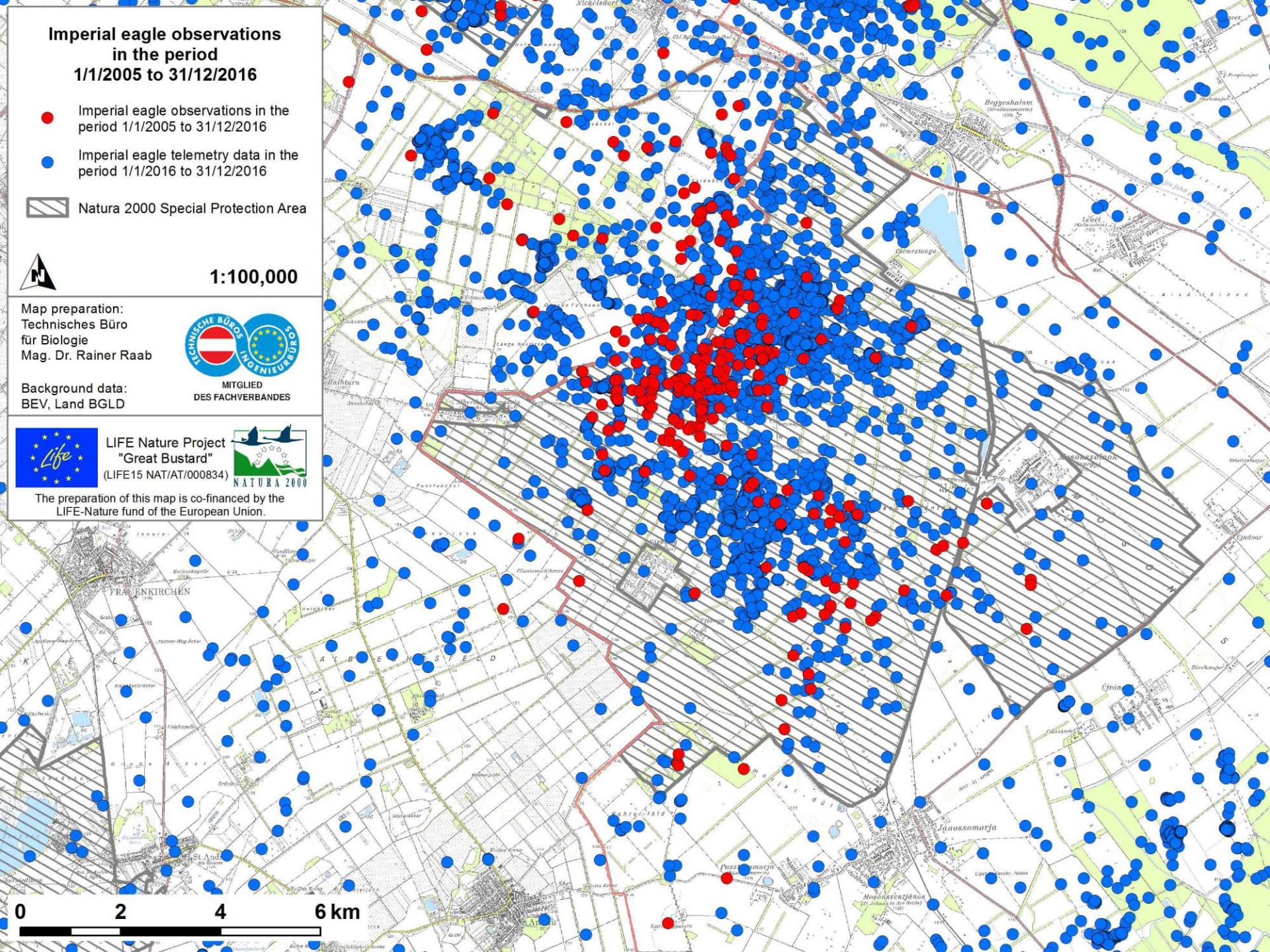
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Background data:
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0 2 4 6 km

**Imperial eagle observations
from July until December
in the period
1/1/2005 to 31/12/2016**

- Imperial eagle observations from July until December in the period 1/1/2005 to 31/12/2016
- Imperial eagle telemetry data from July until December in the period 1/1/2016 to 31/12/2016

Natura 2000 Special Protection Area



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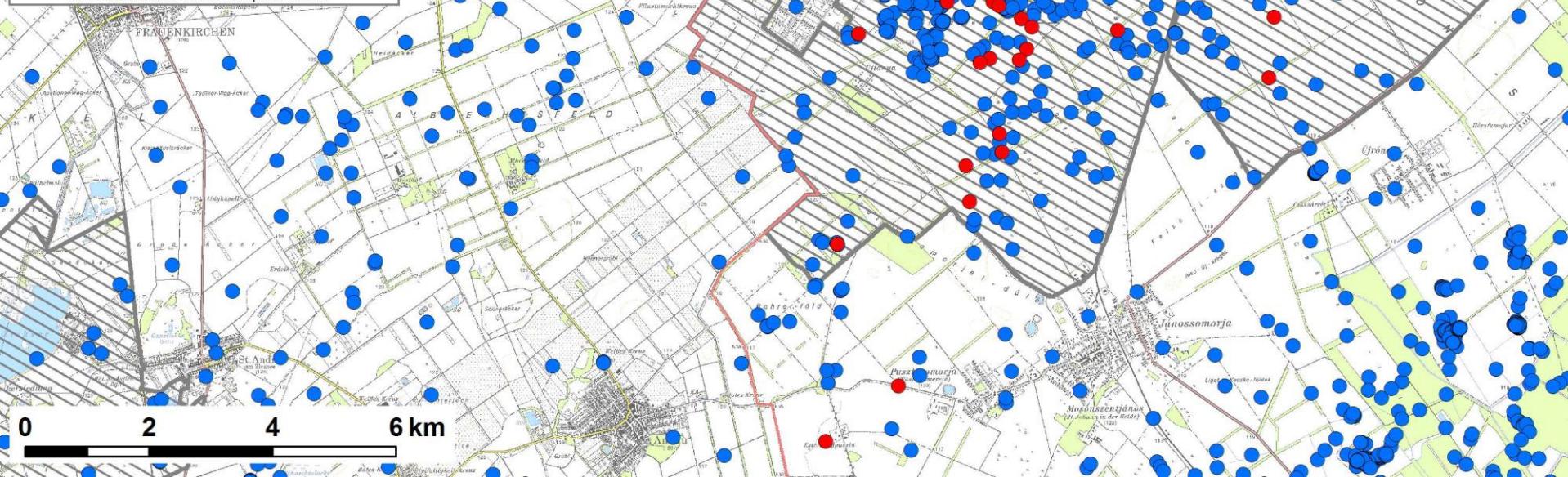
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Background data:
BEV, Land BGLD



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Imperial eagle observations in the period 1/7/2016 to 31/12/2016

- Imperial eagle telemetry data in the period 1/7/2016 to 31/12/2016
- Natura 2000 Special Protection Area

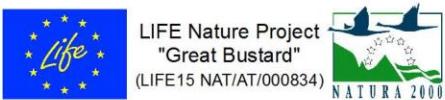
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Map preparation:
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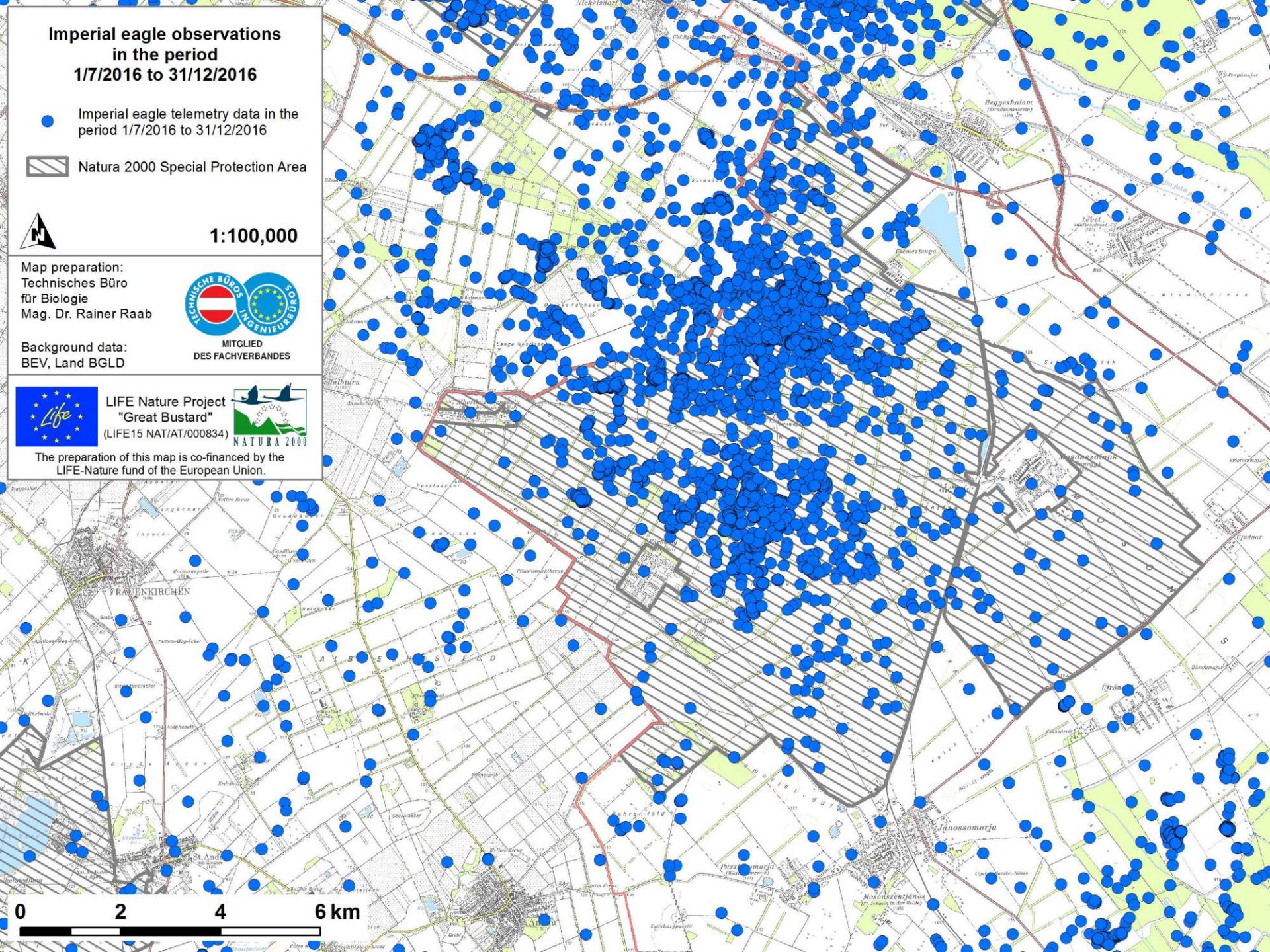


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DES FACHVERBANDES

Background data:
BEV, Land BGLD



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0 2 4 6 km

Great Bustard and Imperial Eagle observations in the year 2007

- Great Bustard observations in the period 1/1/2007 to 31/12/2007
- Imperial Eagle observations in the period 1/1/2007 to 31/12/2007
- Natura 2000 Special Protection Area

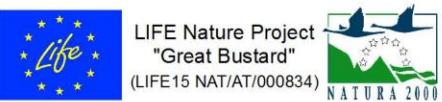
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Map preparation:
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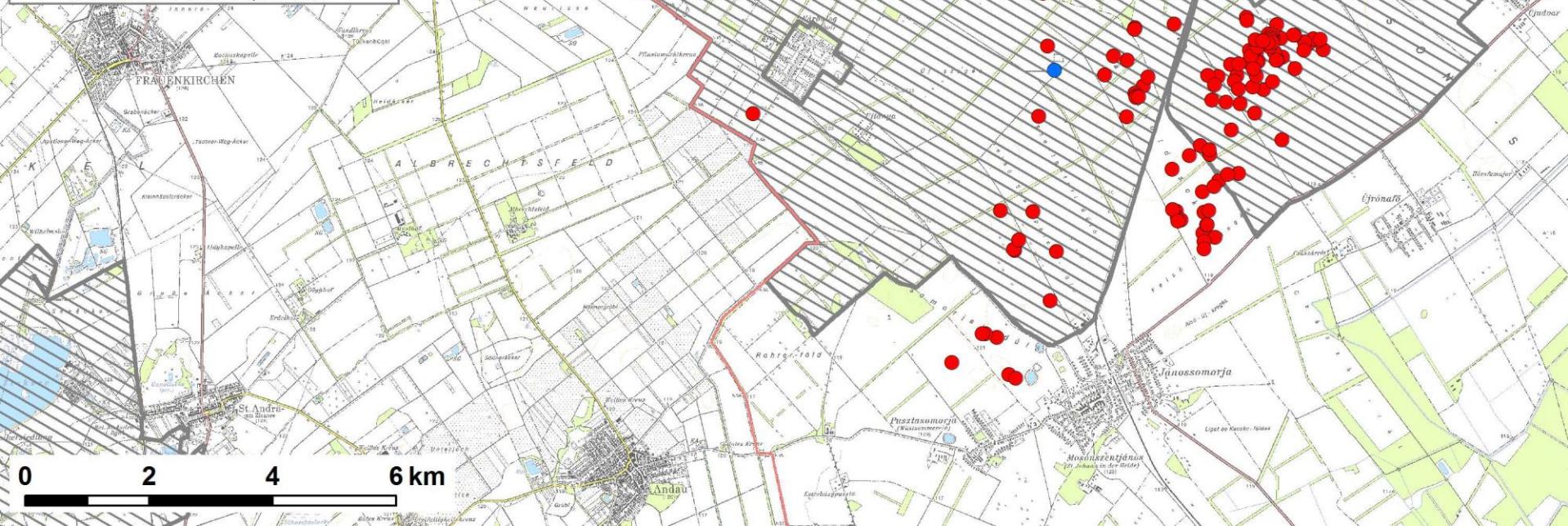


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Background data:
BEV, Land BG LD



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Great Bustard and Imperial Eagle observations in the year 2013

- Great Bustard observations in the period 1/1/2013 to 31/12/2013
- Blue dots Imperial Eagle observations in the period 1/1/2013 to 31/12/2013

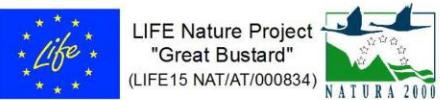
■ Natura 2000 Special Protection Area

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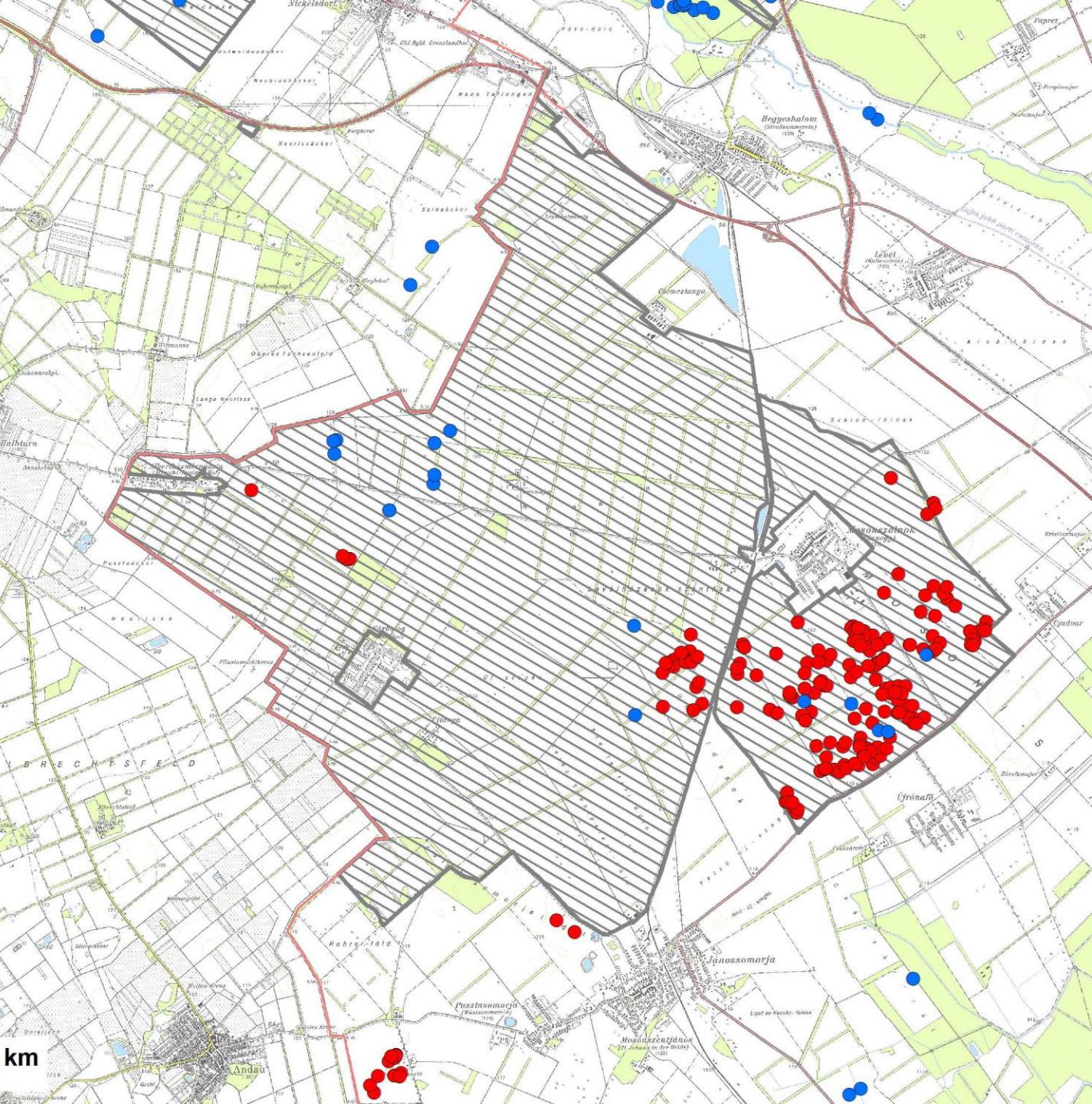
Background data:
BEV, Land BG LD



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0 2 4 6 km



**Great Bustard observations
and Imperial Eagle telemetry data
in the period
1/7/2016 to 31/12/2016**

- Great Bustard observations in the period 1/7/2016 to 31/12/2016
- Imperial Eagle telemetry data in the period 1/7/2016 to 31/12/2016
- Natura 2000 Special Protection Area

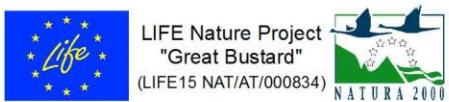


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Map preparation:
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Background data:
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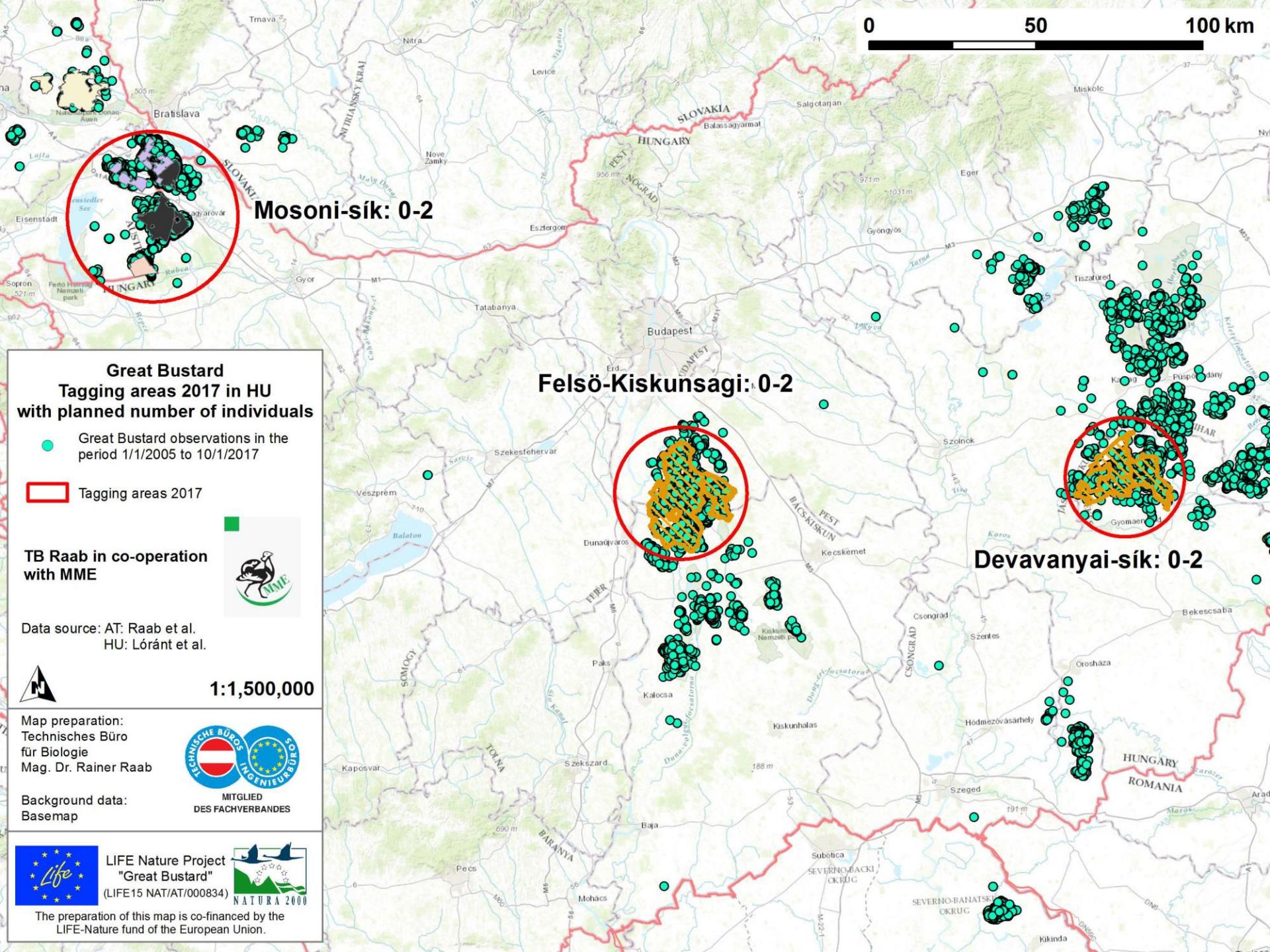
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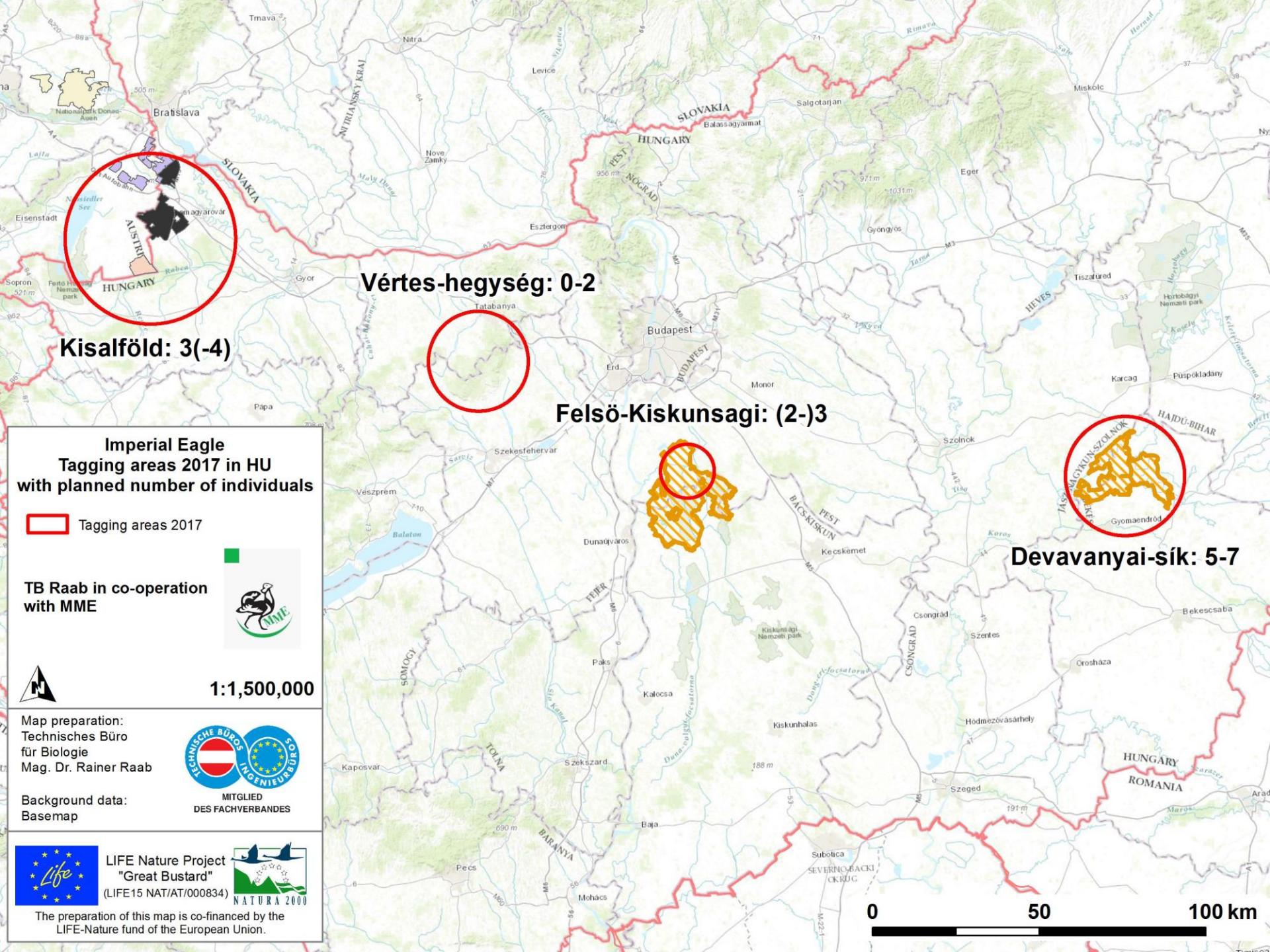


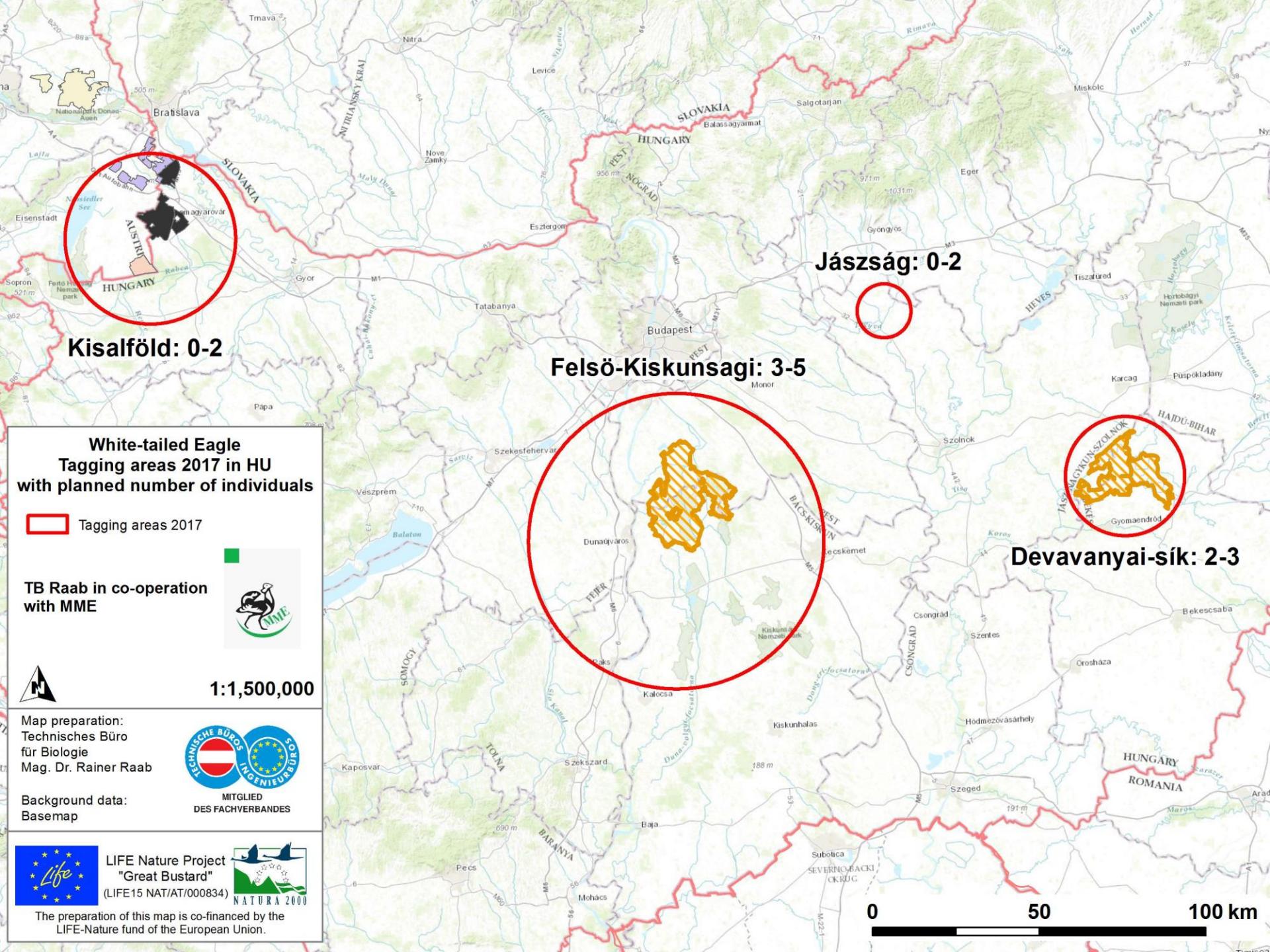


Planned tagging of the three
species with GPS loggers in HU in
2017









Thank you for your attention!

The LIFE Project "Great Bustard"

LIFE15 NAT/AT/000834 is
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