



Bulgarian Society for  
the Protection of Birds



## MOVEMENT PATTERNS OF JUVENILE AND IMMATURE EASTERN IMPERIAL EAGLES FROM BULGARIA

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Photo: Fotis Samaritakis



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**Our research is part of long term conservation efforts aimed to ensure survival of the Bulgarian population of Eastern Imperial eagle (currently about 40 pairs):**

## **Main goals of the satellite tracking**

- To identify dispersal and migration pattern of immature Imperial eagles from the Bulgarian population
- To identify the wintering grounds of juvenile and immature eagles
- To identify key temporary settlement areas
- To justify and encourage application of further conservation activities



- 23 juvenile eagles have been tagged in the period 2008-2013 with 70 grams Argos GPS transmitters of Microwave
- 7 eagles were tagged with 45 grams Ornitela GPS/GSM transmitters in 2021-2022



# Locations of tagged eagles during their **First Autumn**

1<sup>st</sup> of September - 30<sup>th</sup> October

Heading to Turkey, Middle East and Afrika





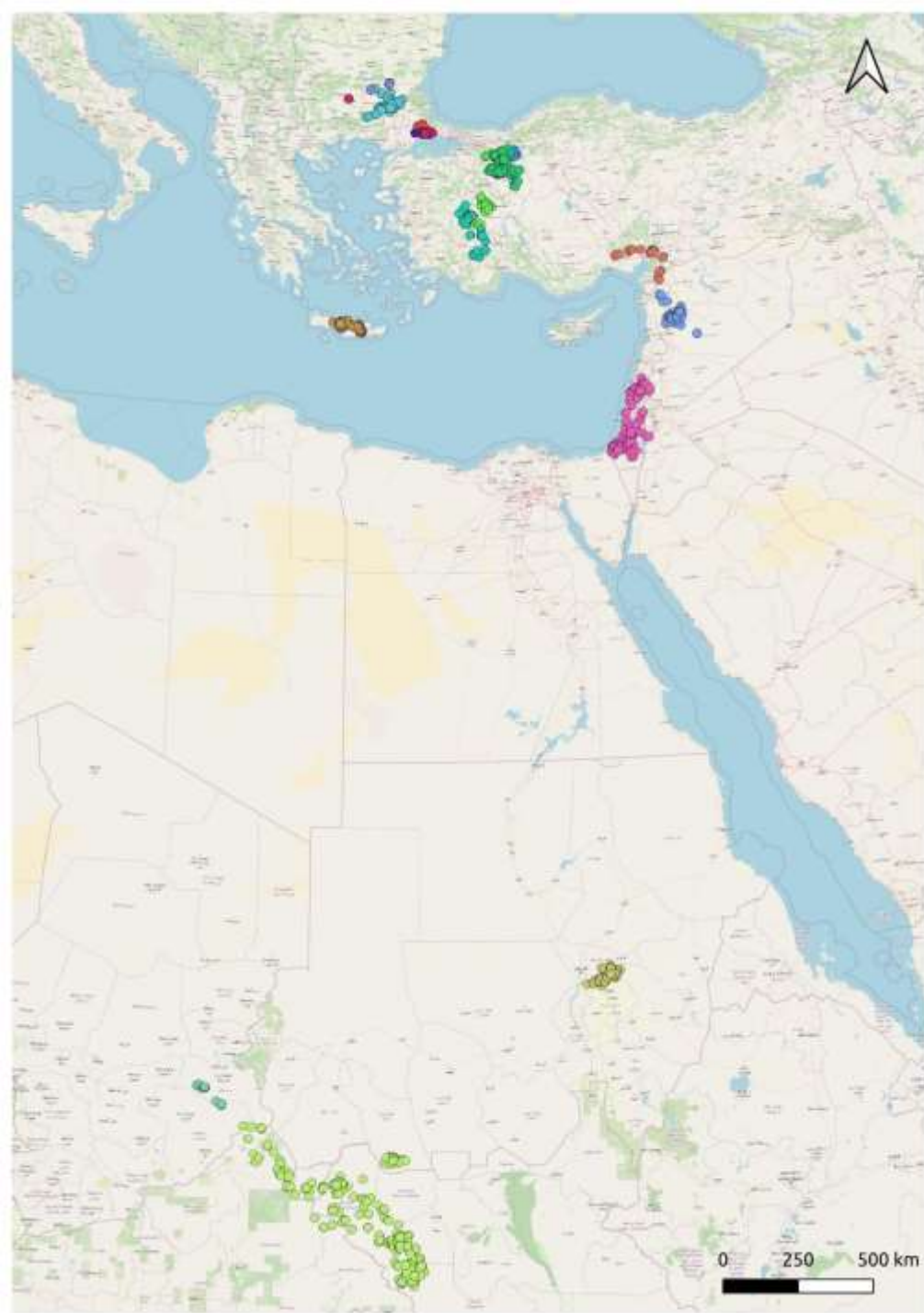
# Locations of tagged Imperial eagles during their **First winter**

1<sup>st</sup> of December - 28<sup>th</sup> of February

Most eagles winter in the Middle East and Africa, few remain on the Balkans



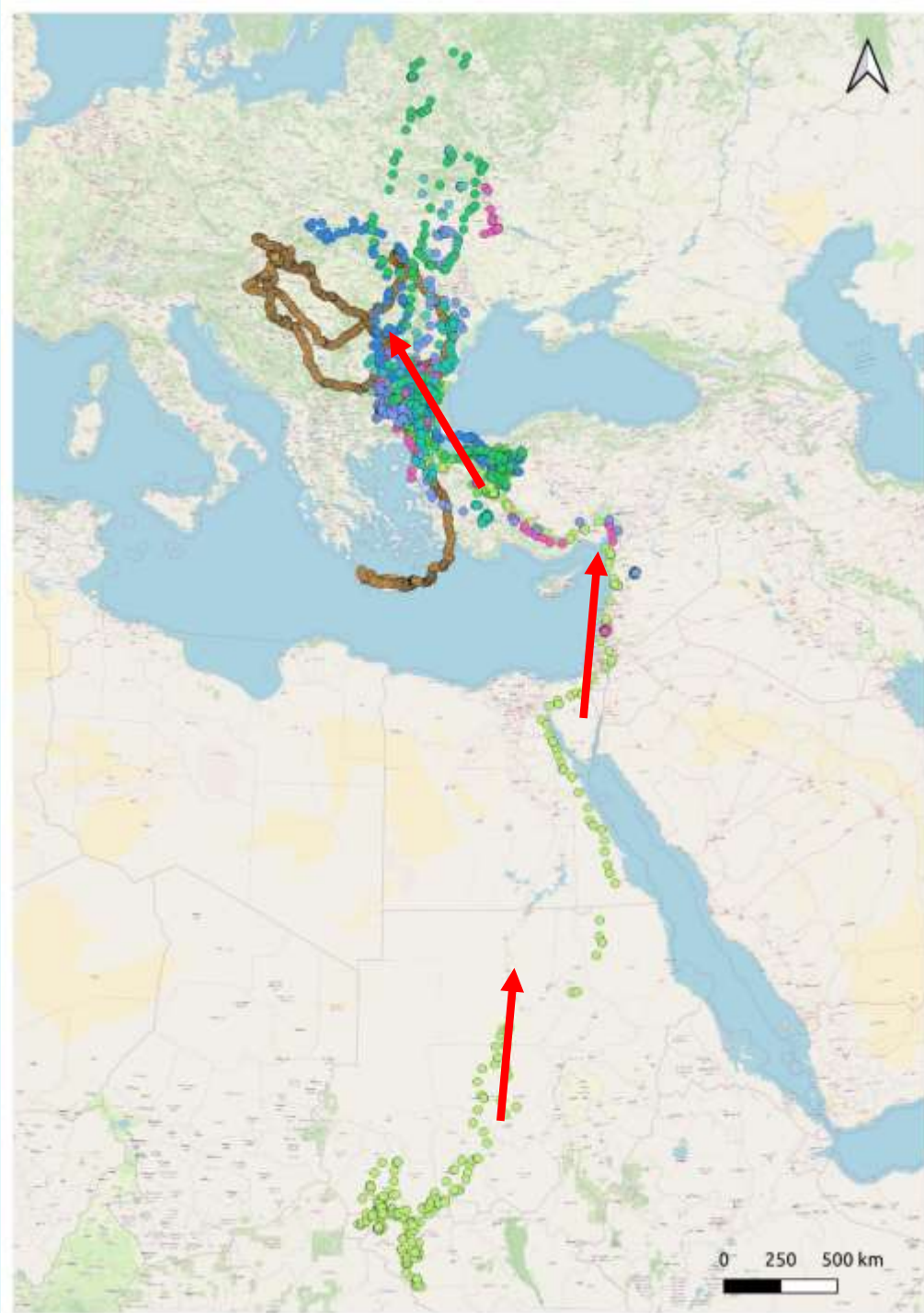
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# Locations of tagged Imperial eagles during their **First spring**

1<sup>st</sup> March - 31<sup>st</sup> of May

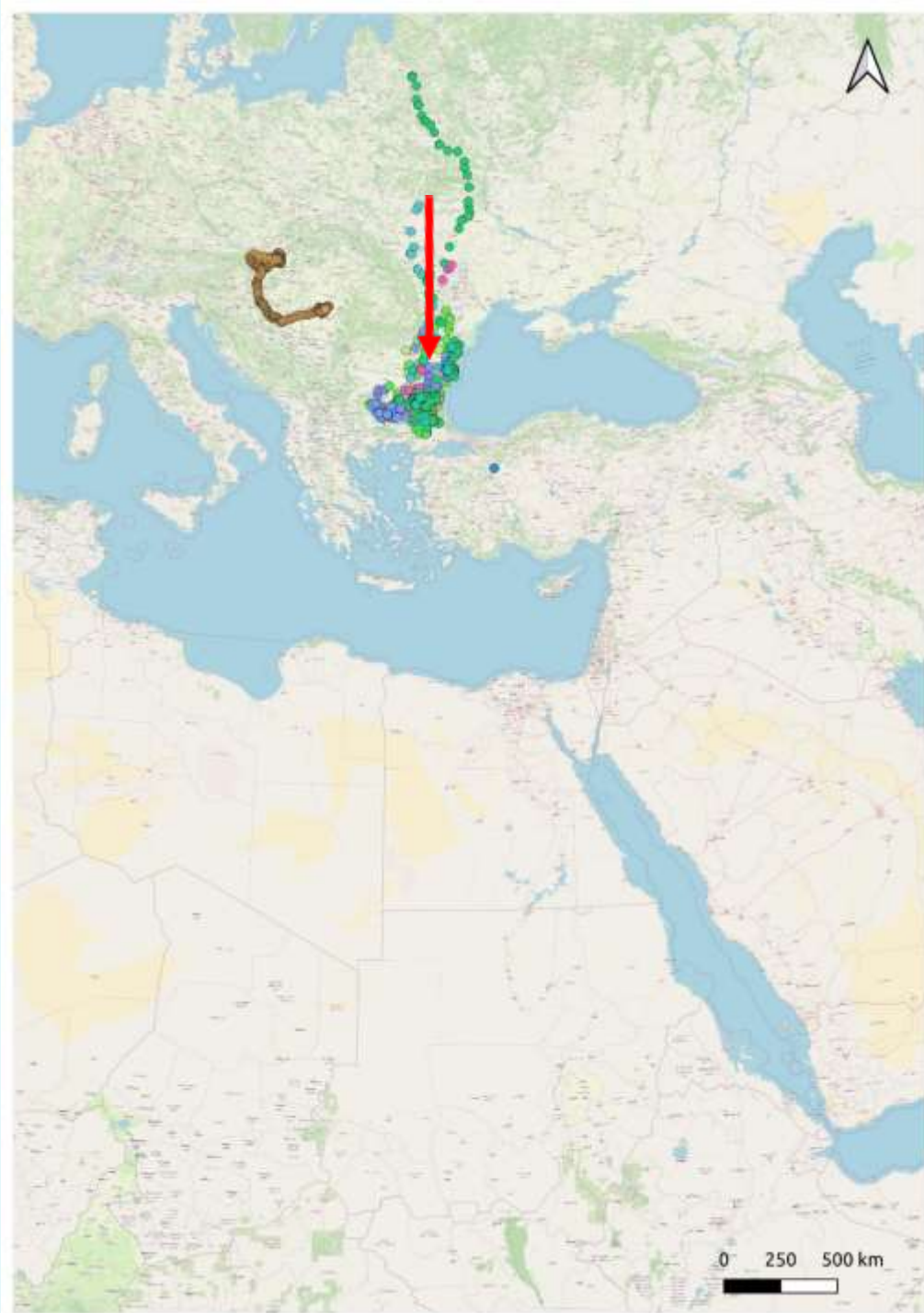
Back to Bulgaria and exploratory flights to the north of the natal areas



# Location of tagged Imperial eagles during their **First summer**

1<sup>st</sup> of June - 31<sup>st</sup> of August

Back from the exploratory flights and spending more time in temporary settlement areas in the Eastern Balkans, close to the natal areas

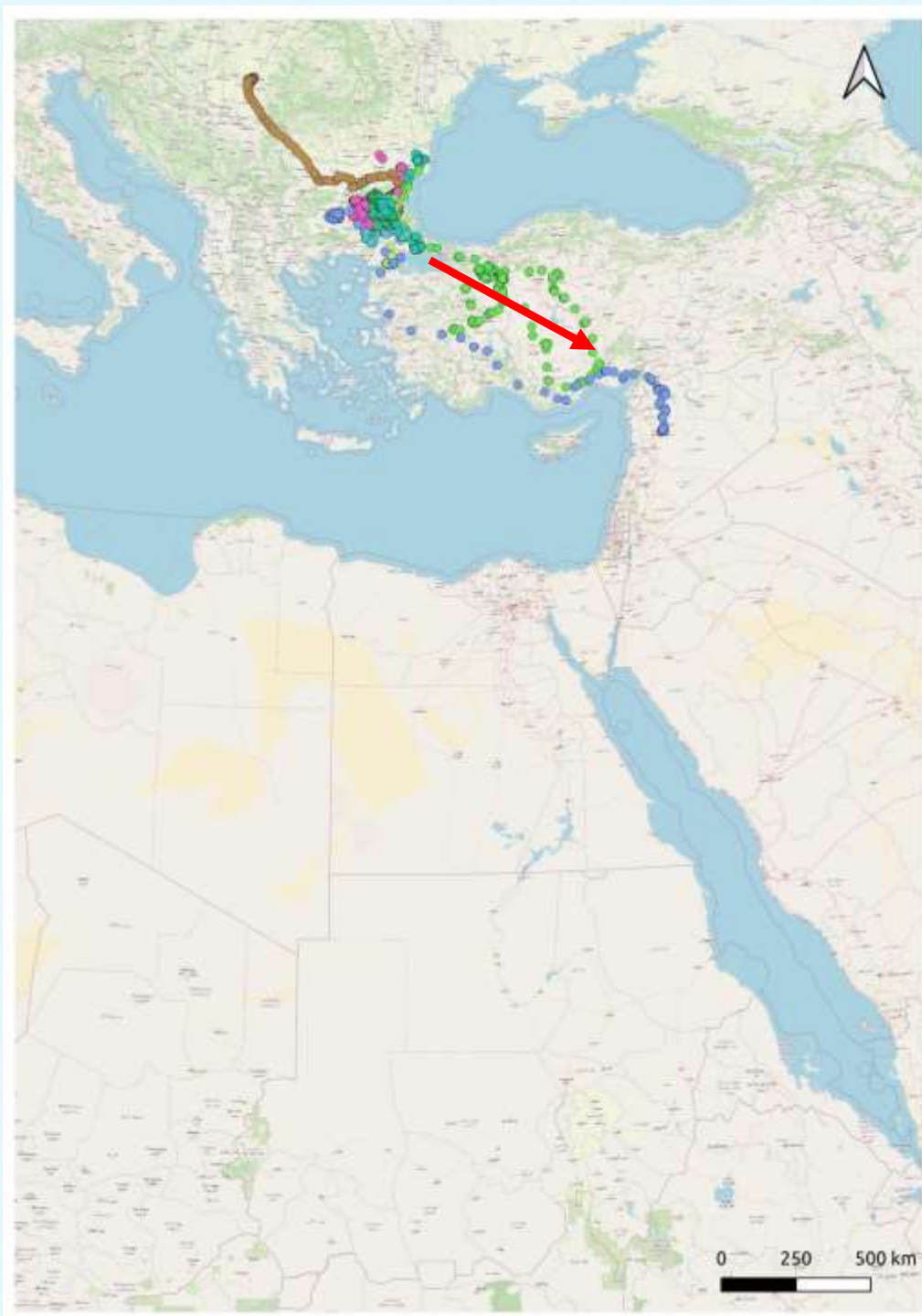




# Locations of tagged Imperial eagles during their **Second autumn**

1<sup>st</sup> of September- 30<sup>th</sup> October

Some move to the south but more stay close to the natal areas in Southeastern Balkans

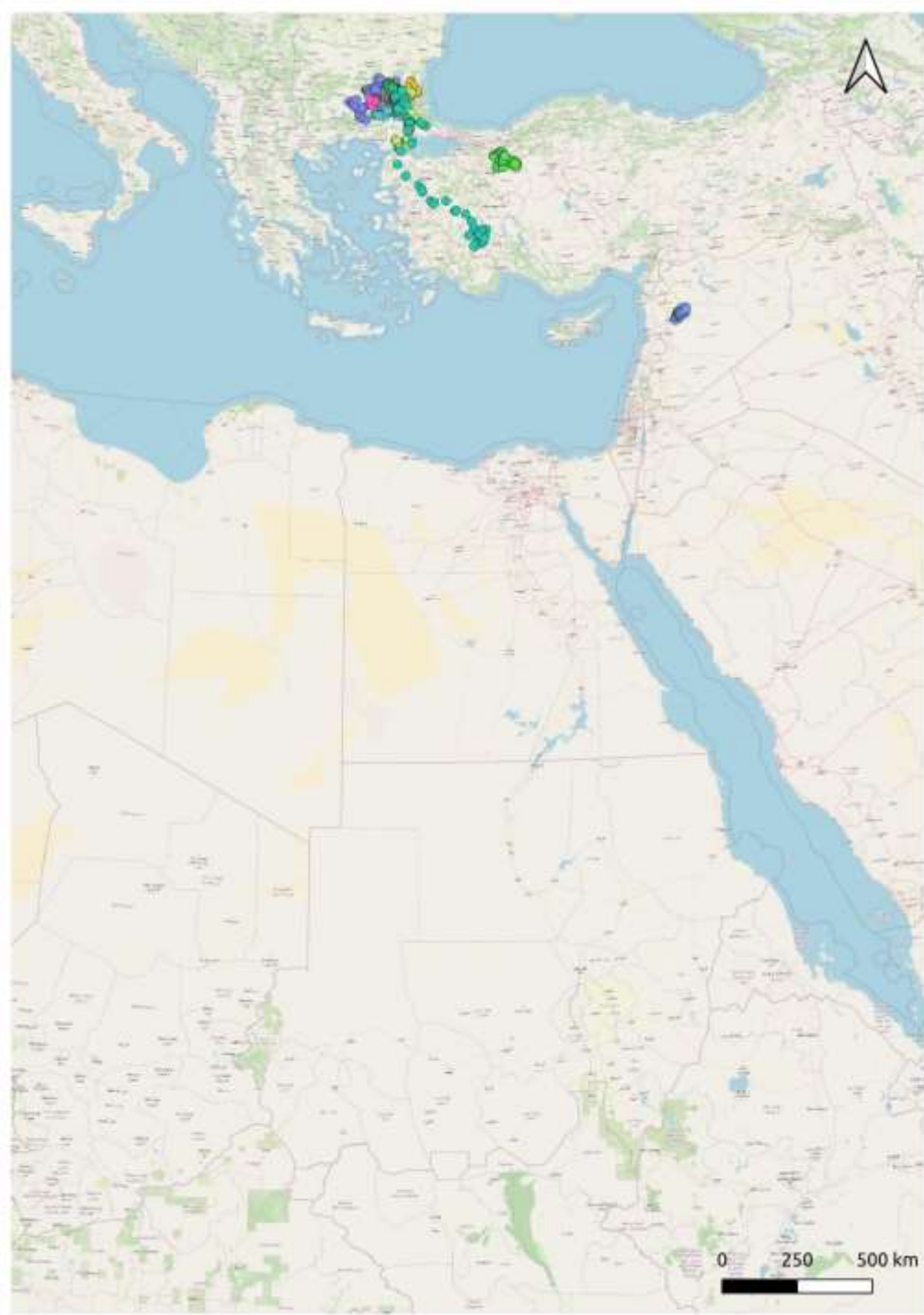




# Locations of tagged Imperial eagles during their **Second winter**

1<sup>st</sup> of December - 28<sup>th</sup> of February

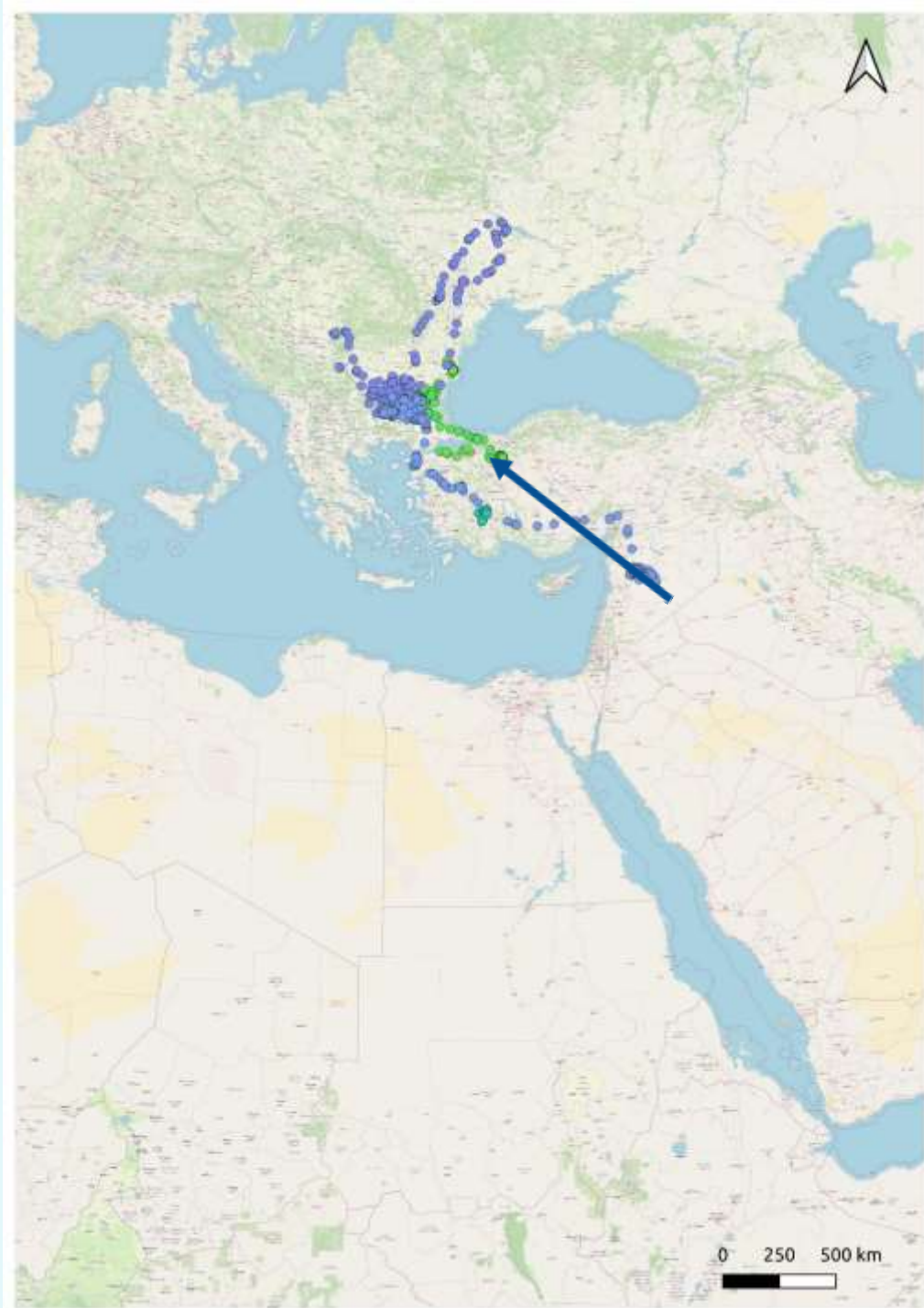
Most the eagles spend their second winter close to the natal areas



# Locations of tagged Imperial eagles during their **Second spring**

1<sup>st</sup> March - 31<sup>st</sup> of May  
of second calendar  
eagles

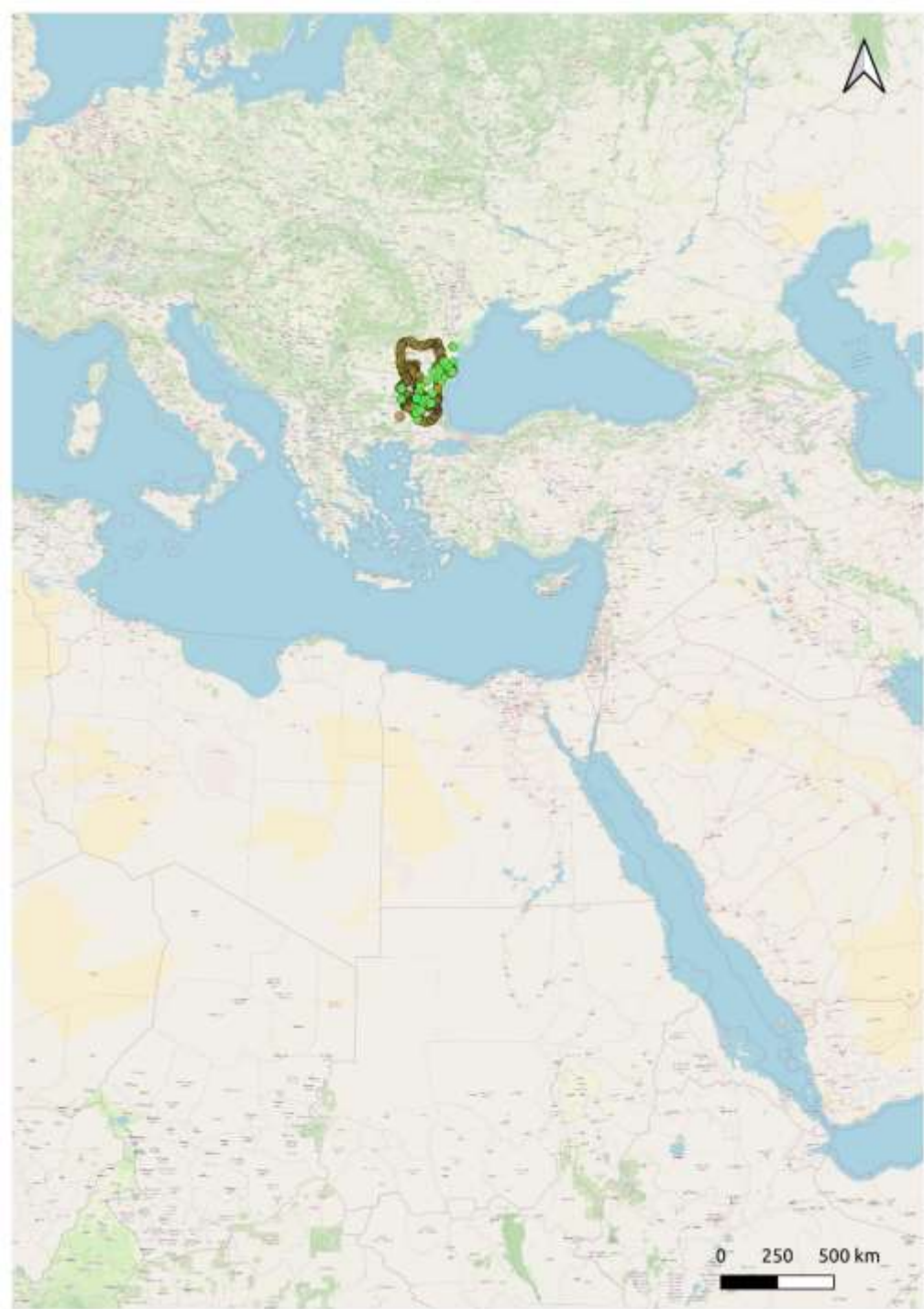
Most the eagles spend their  
second spring close to the  
natal areas



# Locations of tagged Imperial eagles during their **Second summer**

1<sup>st</sup> of June - 31<sup>st</sup> of August

Most the eagles spend their  
second winter close to the  
natal areas

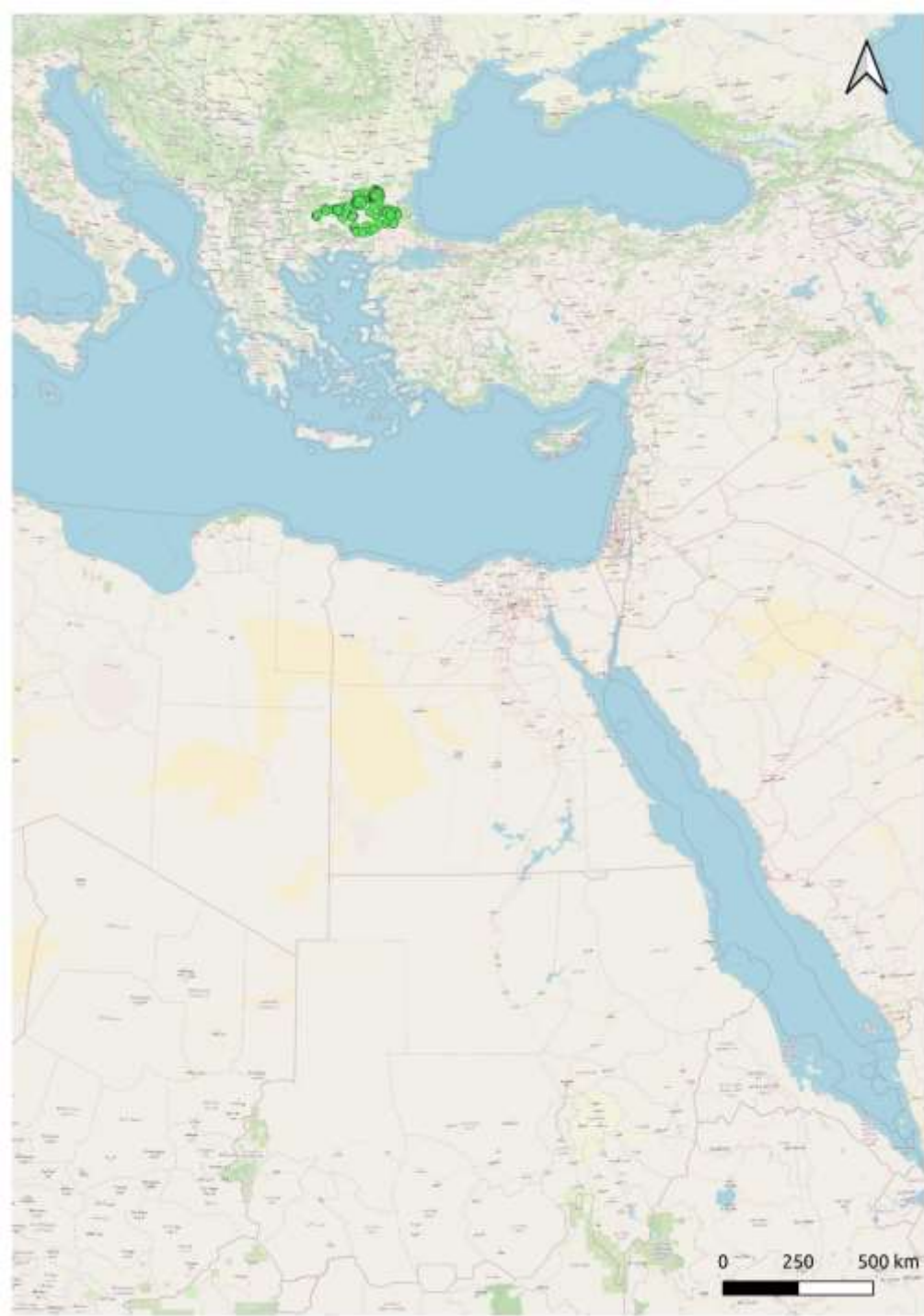




# Locations of tagged Imperial eagles during their **Third autumn**

1<sup>st</sup> of September- 30<sup>th</sup> October

Most of the eagles spend their  
third autumn close to the natal  
areas



# Locations of tagged Imperial eagles during their **Third winter**

1<sup>st</sup> of December - 28<sup>th</sup> of February

Most the eagles spend their third winter close to the natal areas

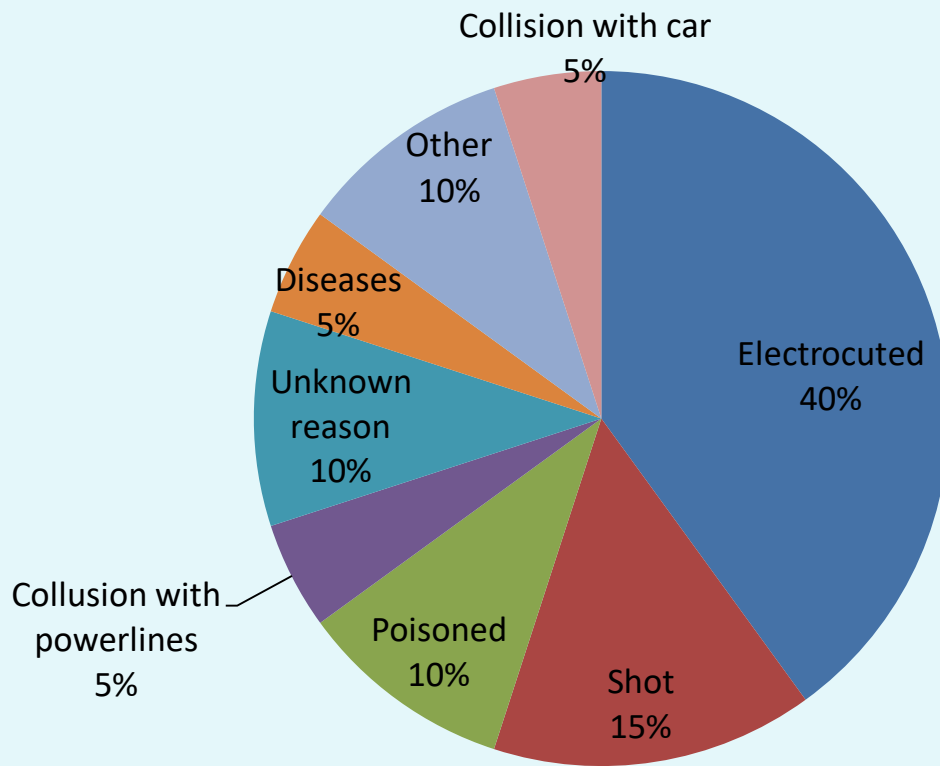


The story of Kali, an eagle tagged in 2022

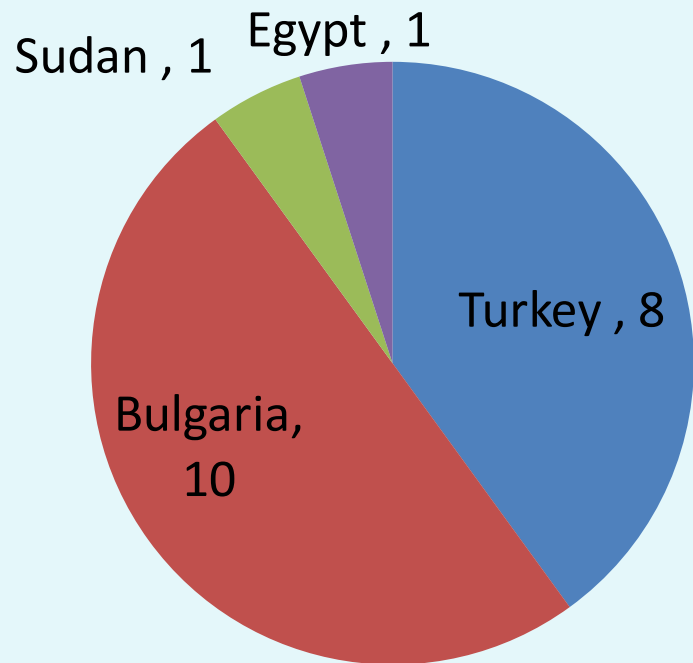




# Mortality causes of 20 satellite tracked juvenile and immature Imperial eagles



# Confirmed mortality cases of per country



# Conservation implications for the Bulgarian population

Immature imperial eagles spend significant part of their life time outside Bulgaria and the European Union

The main threat is electrocution

Priority country for conservation efforts besides Bulgaria is Turkey





# Follow up



LIFE + project focused on electrocution was developed by all 3 grid operators in Bulgaria

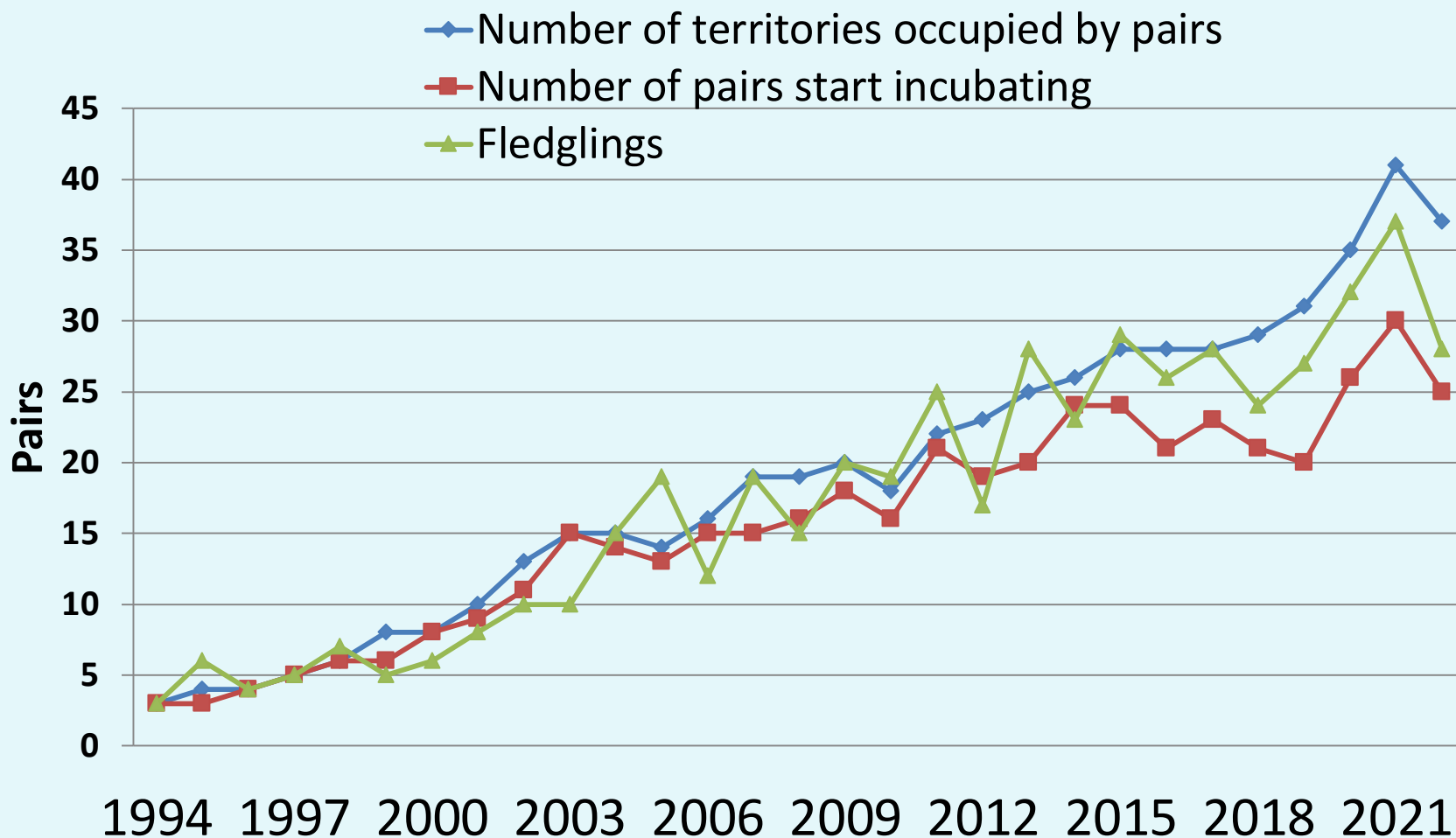
Over 3700 poles were insulated and insulations is ongoing

Cross border project to start insulation in Turkey is under preparation

First insulations in Turkey were carried out by LIFE Egyptian vulture project



# Population dynamic of Eastern Imperial eagle in Bulgaria



# Acknowledgment

BSPB/BirdLife in Bulgaria appreciates the support of various organization and individuals for implementing Imperial eagle satellite tracking program:

LIFE program of the European Union

Bulgaria –Turkey cross-border cooperation program

RSPB – BirdLife in UK

MME -BirdLife in Hungary

DD - BirdLife in Turkey

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Steffen Oppel - RSPB



Thank you for your  
attention!



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