

Establishing the monitoring of Habitats directive butterfly species in Slovenia

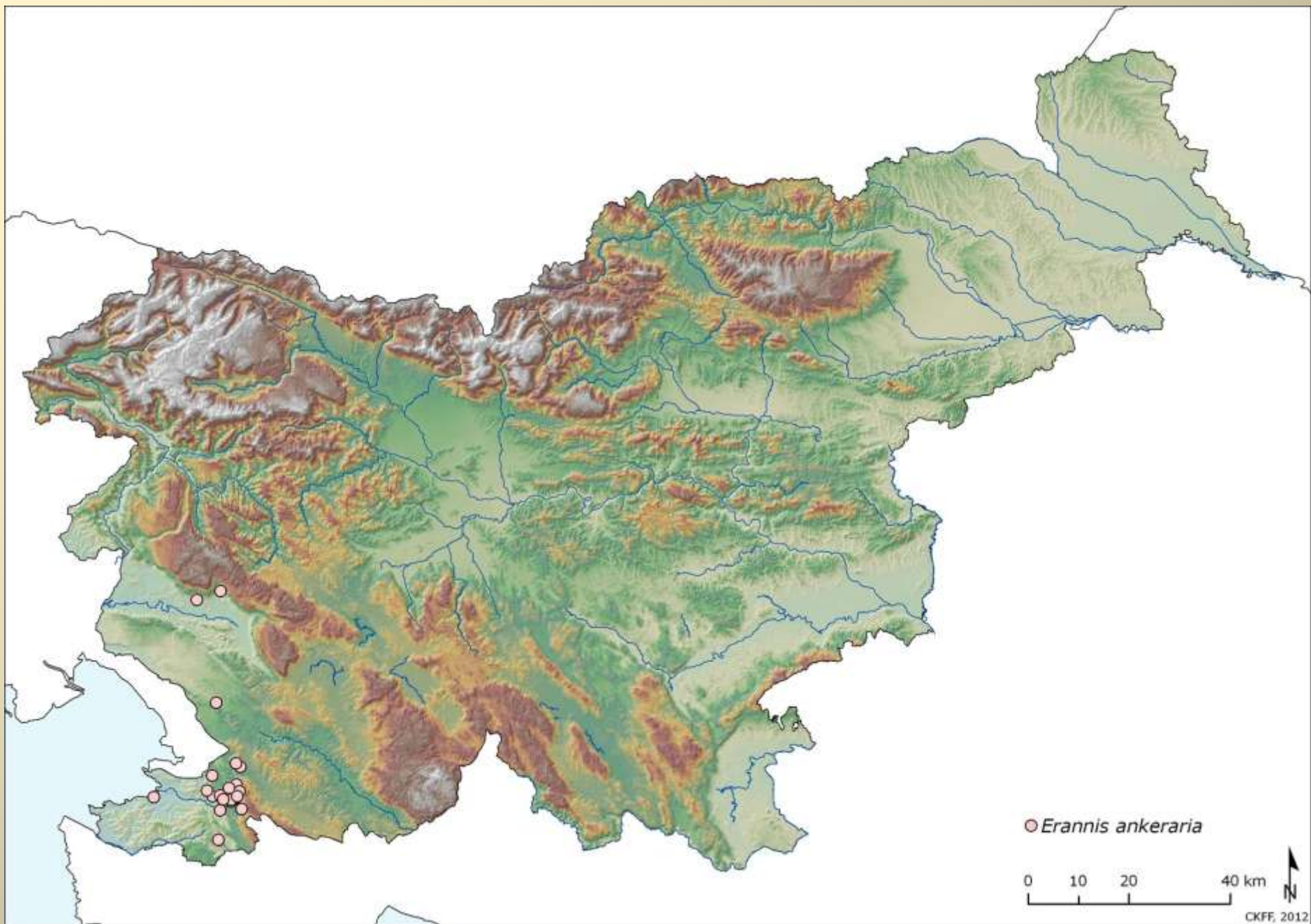
Rudi VEROVNIK

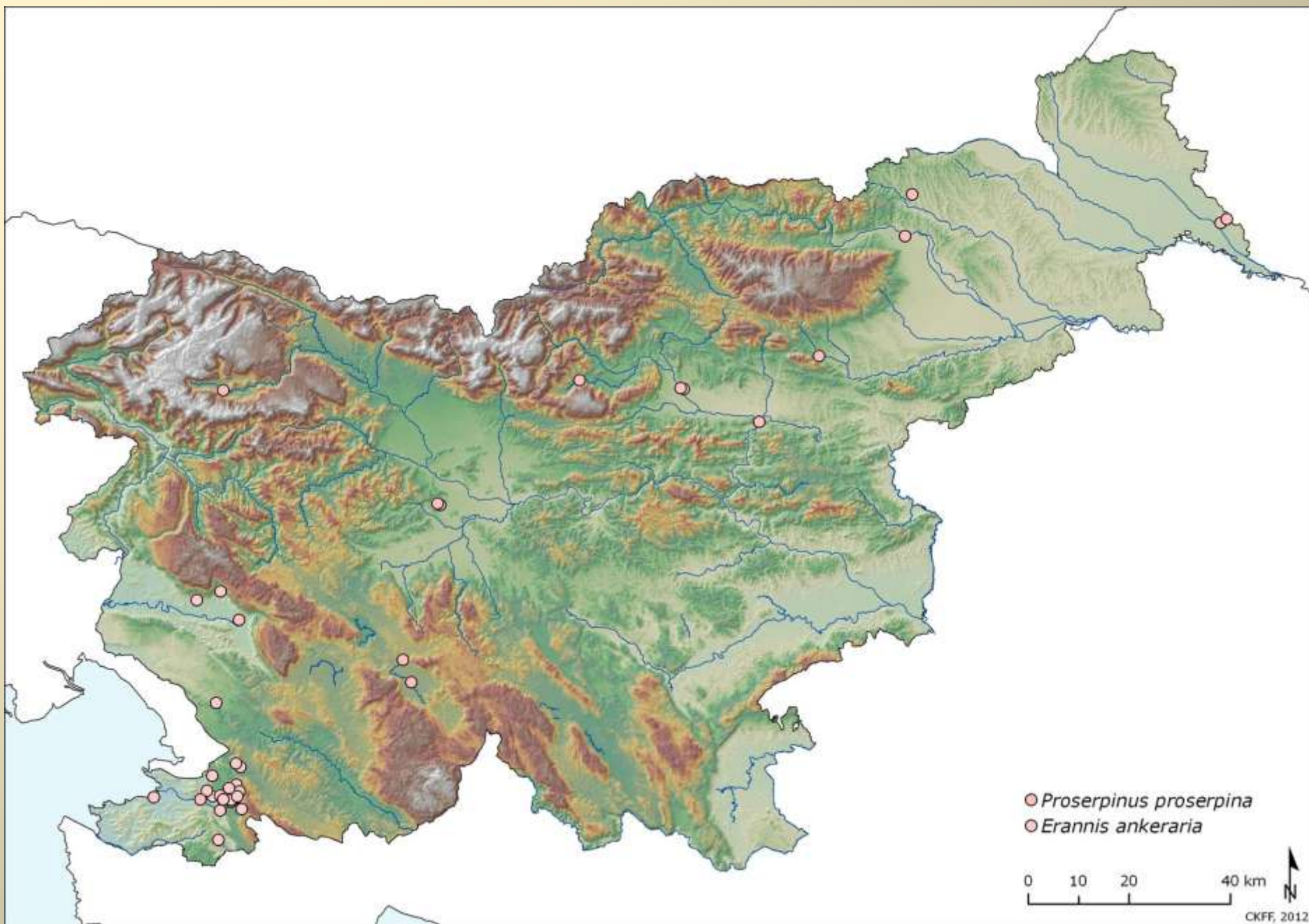
Future of Butterflies in Europe III

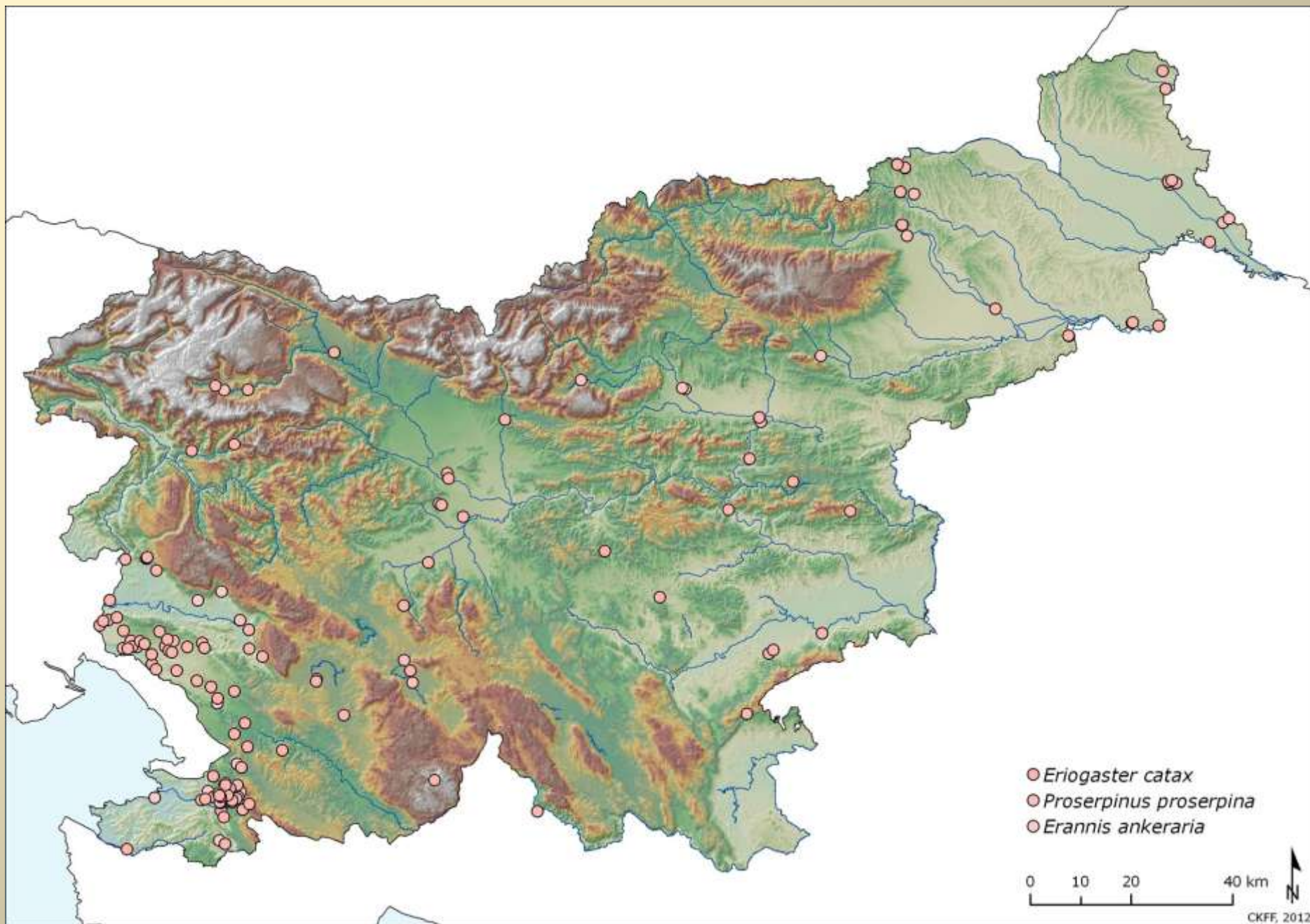
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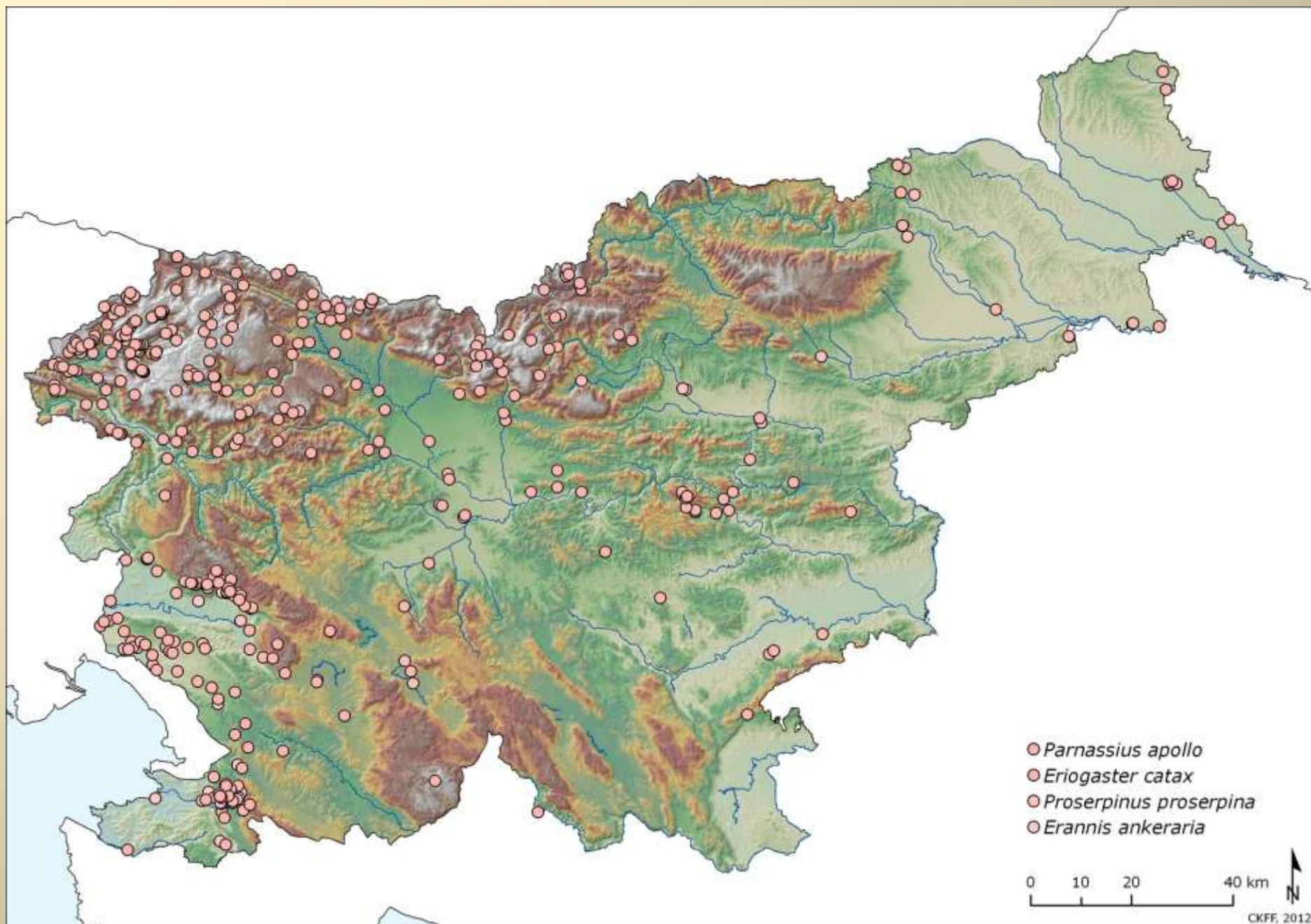
29 - 31 March 2012

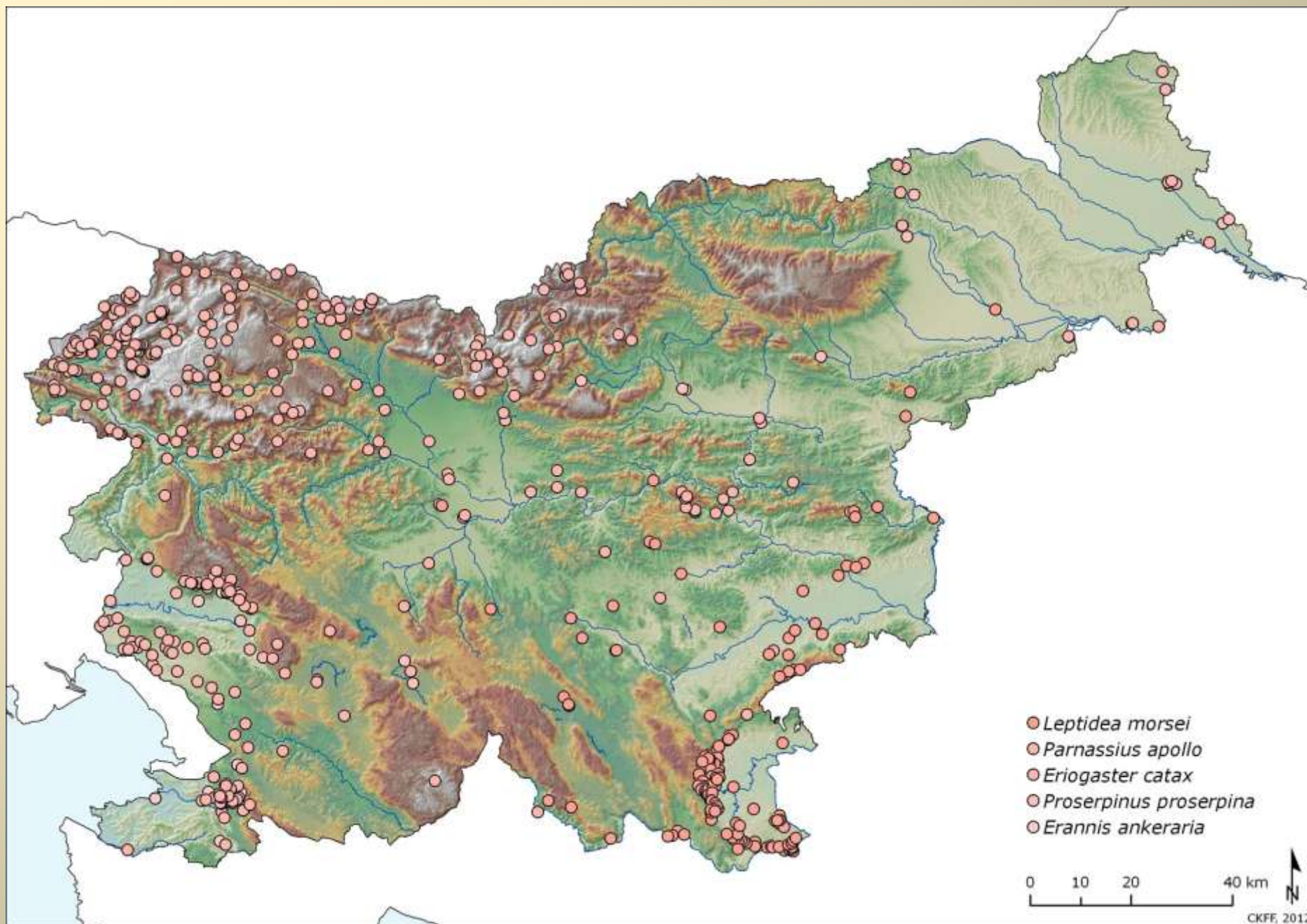


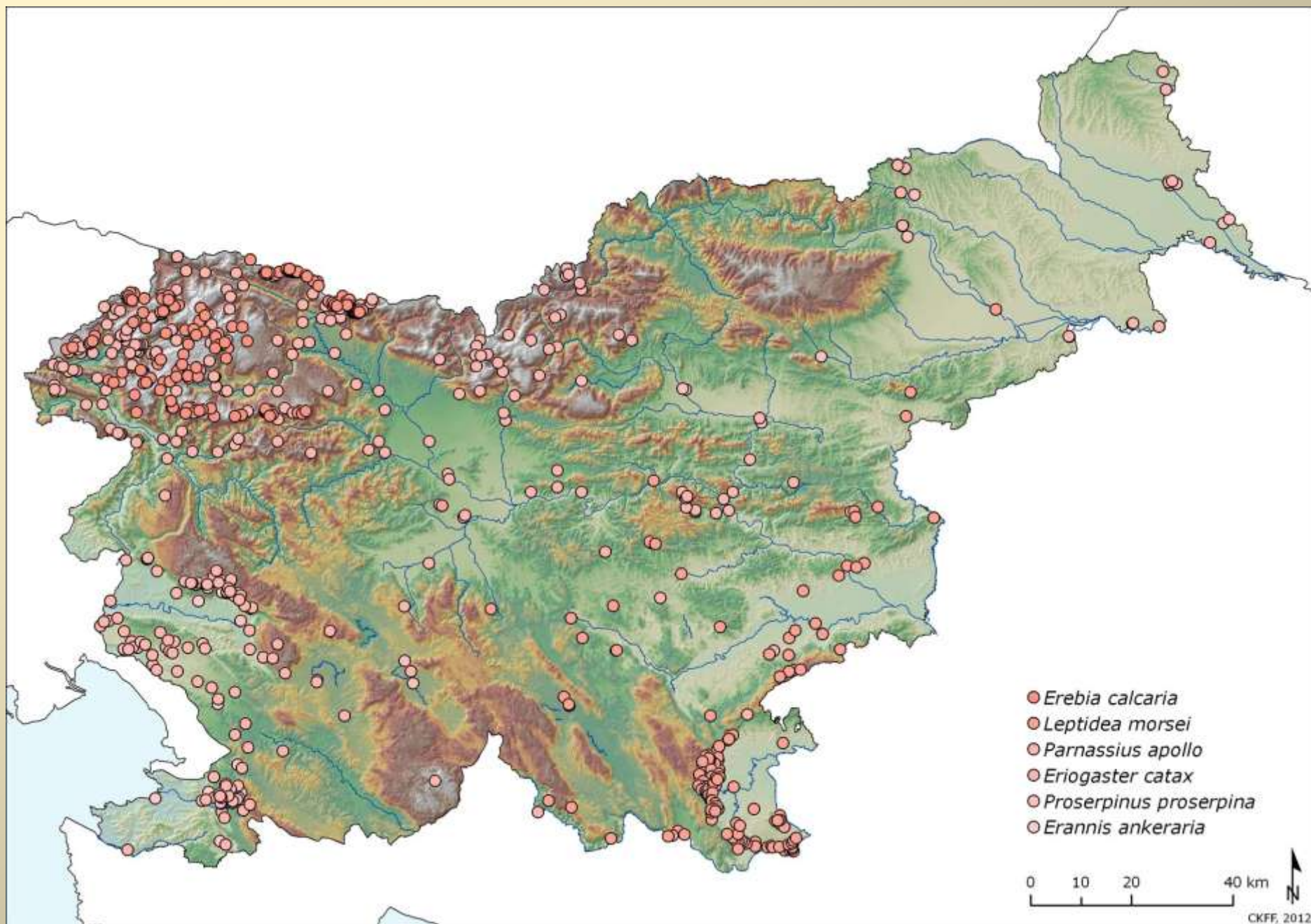


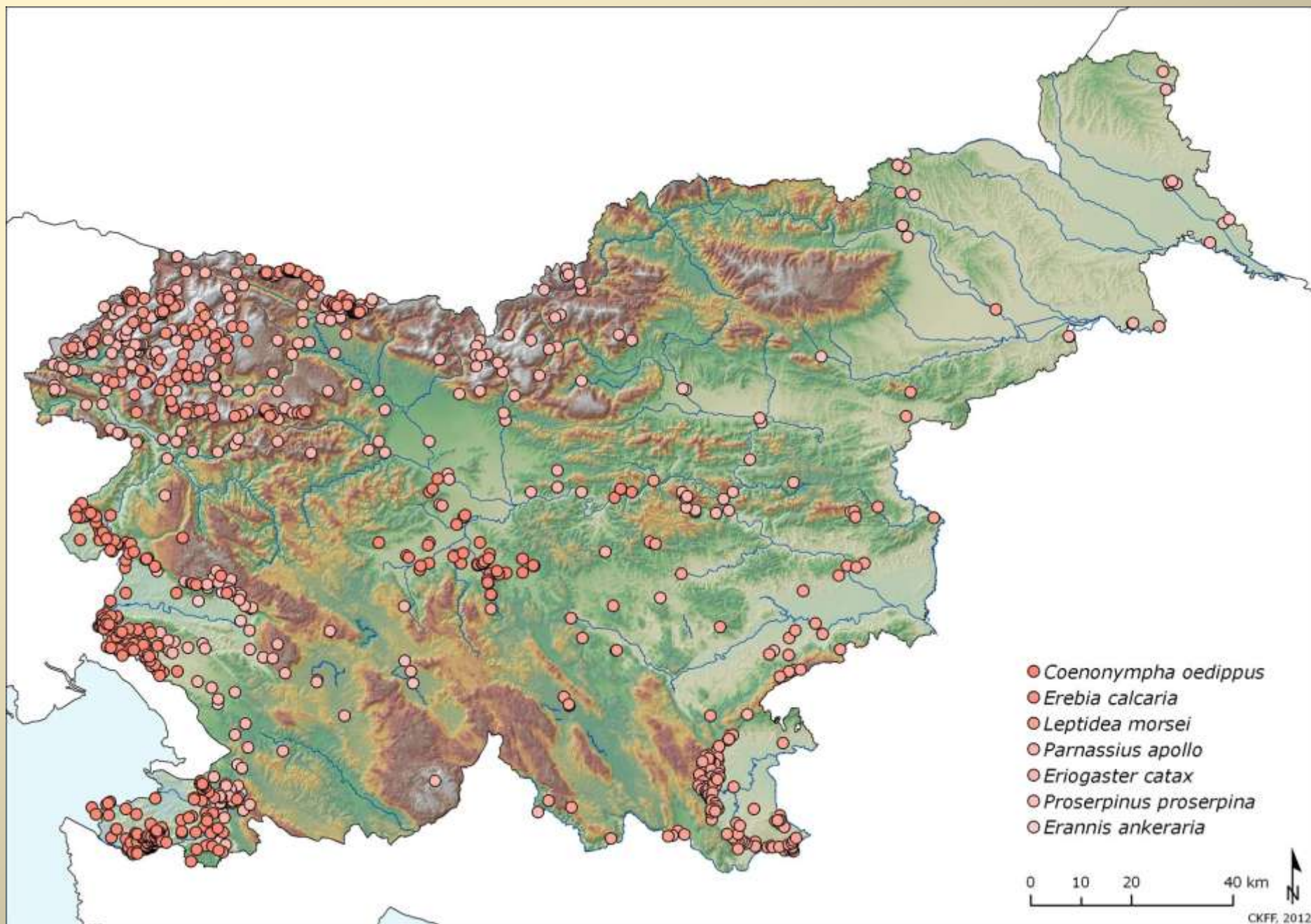


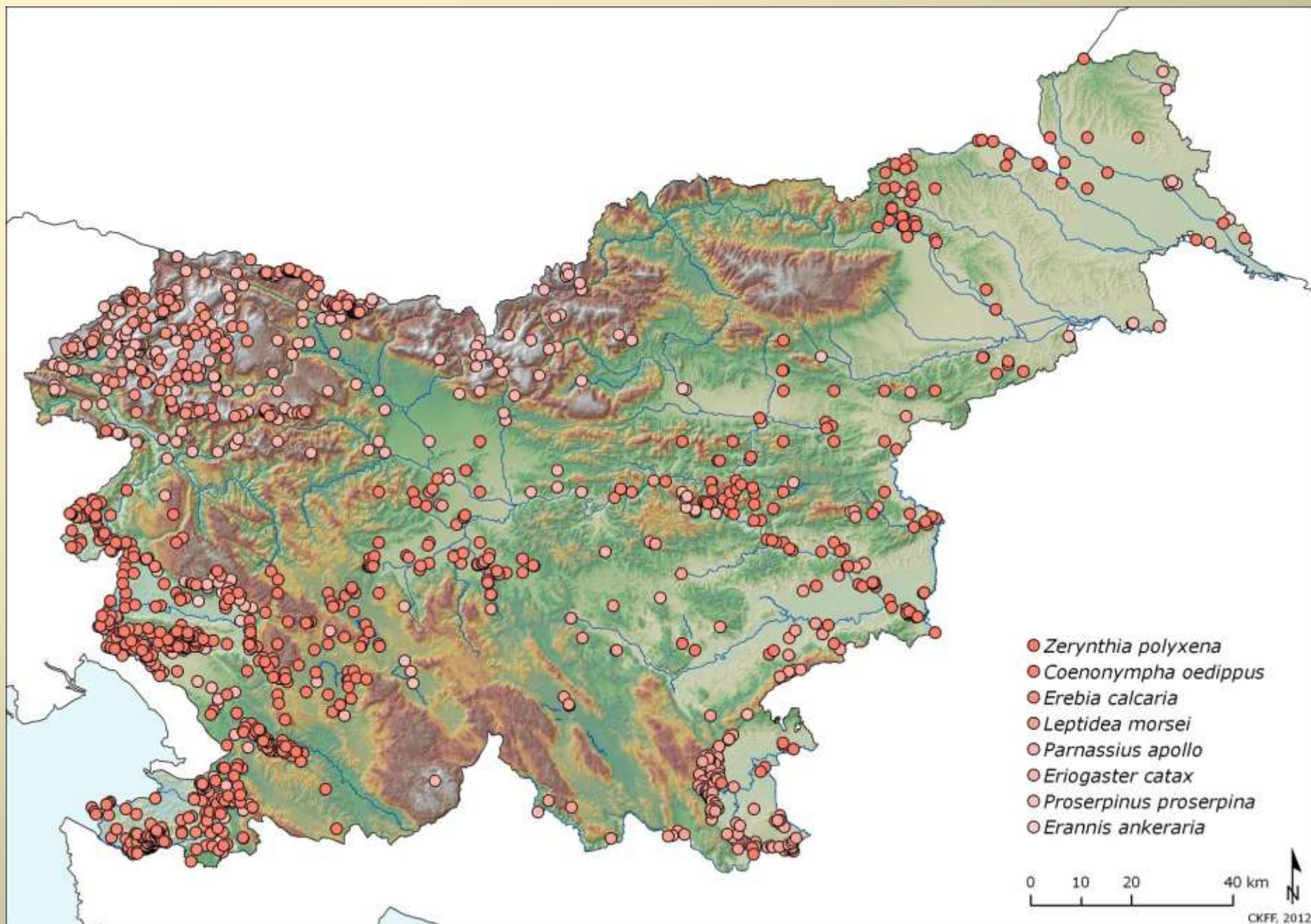


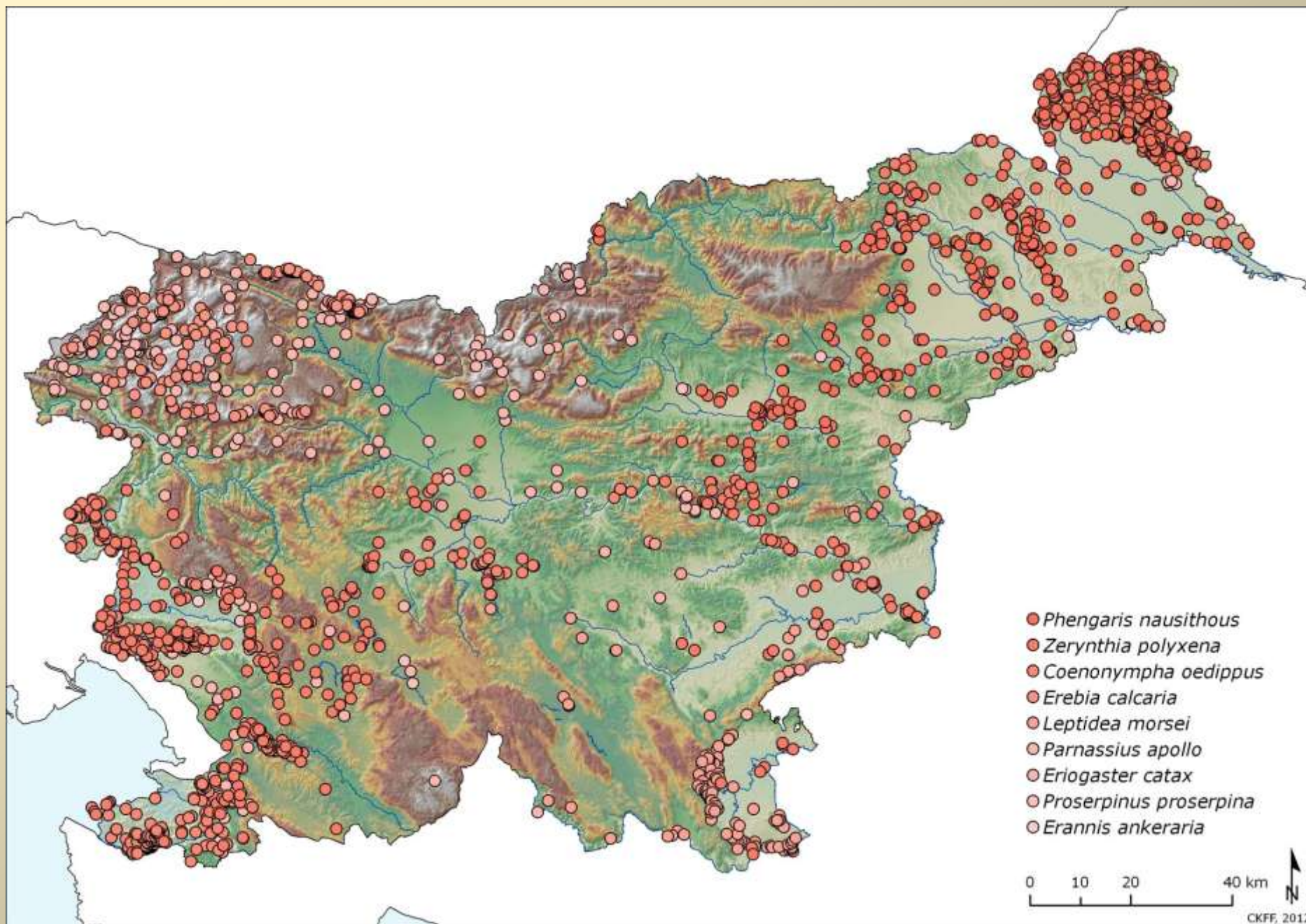


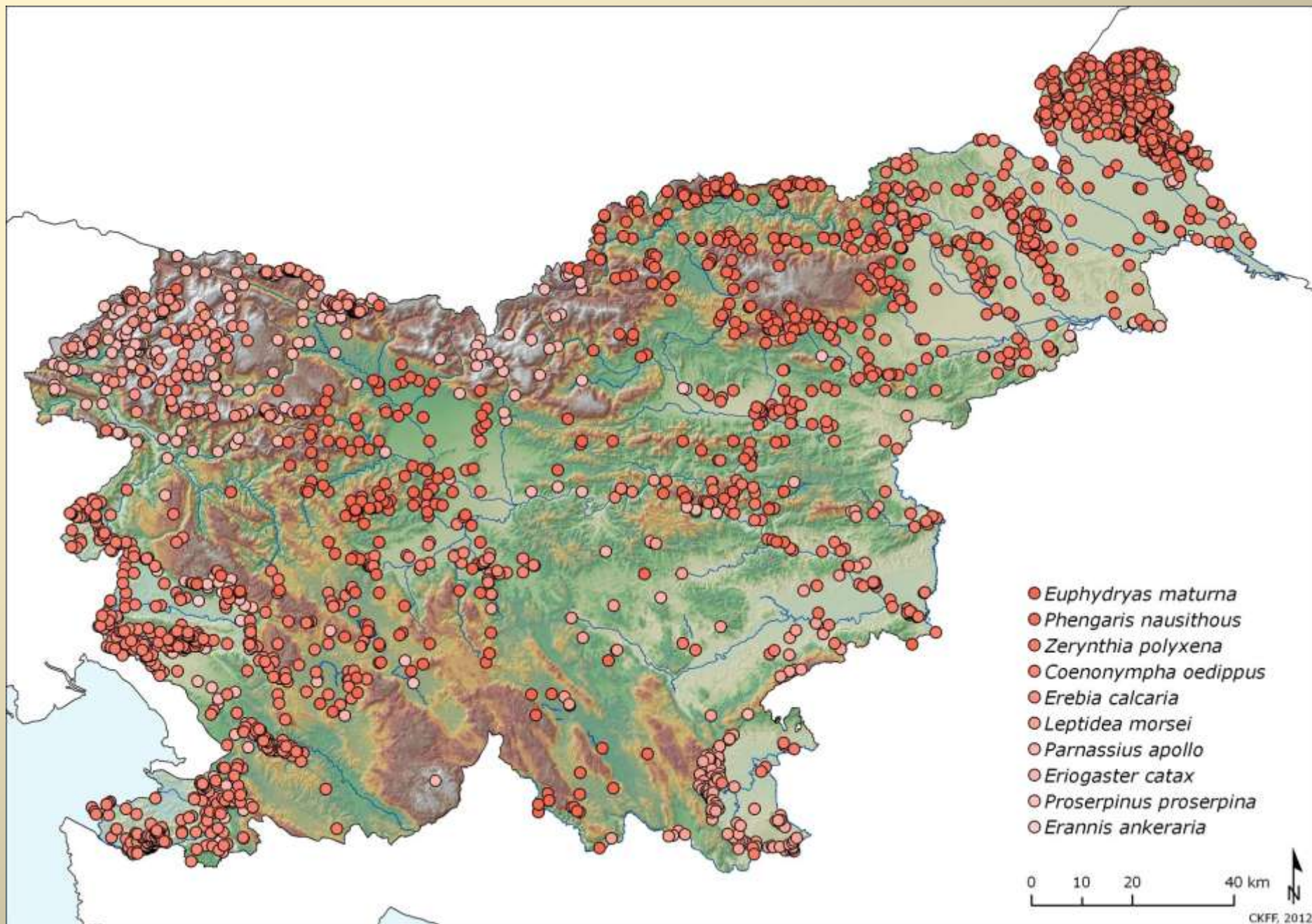


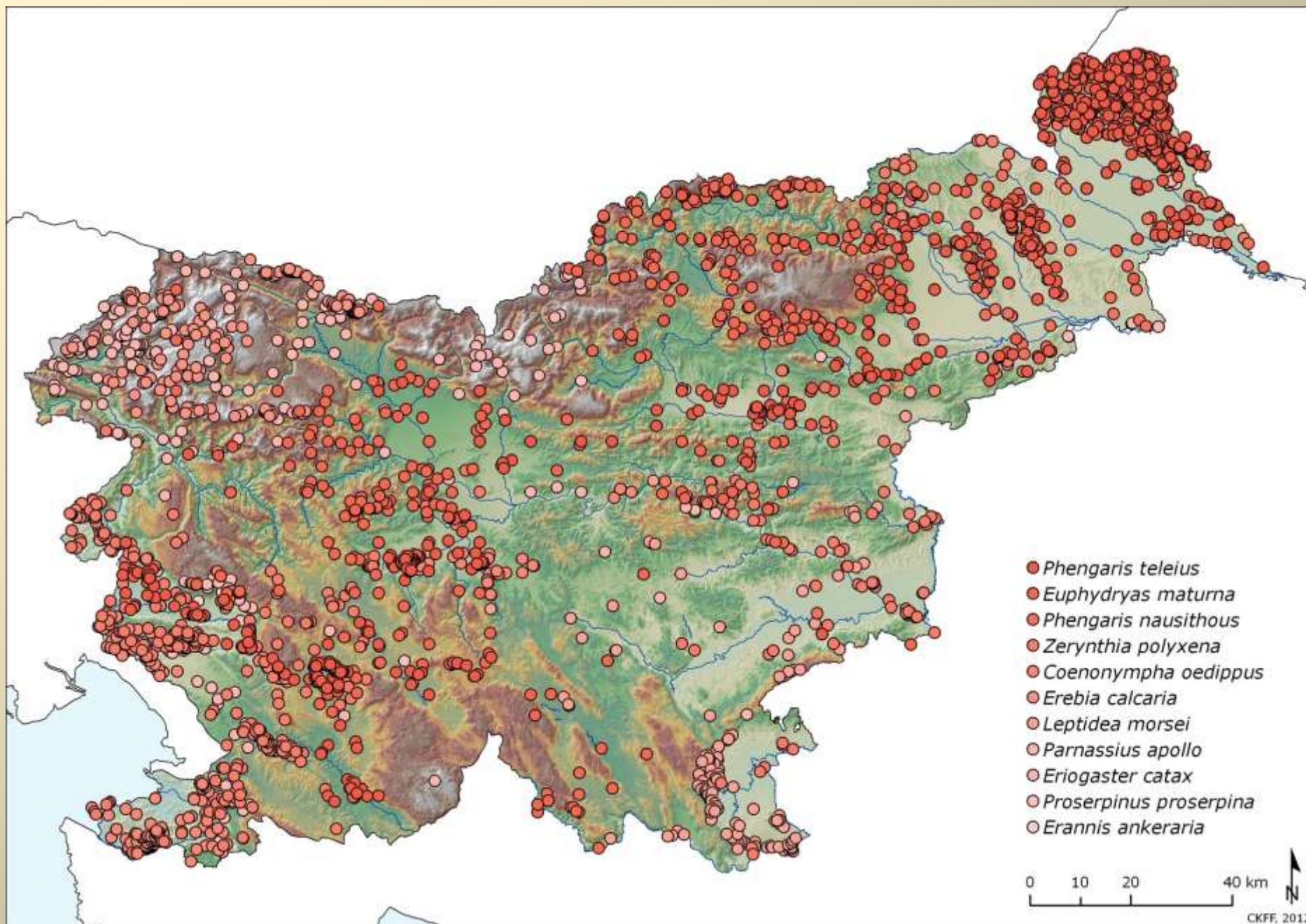


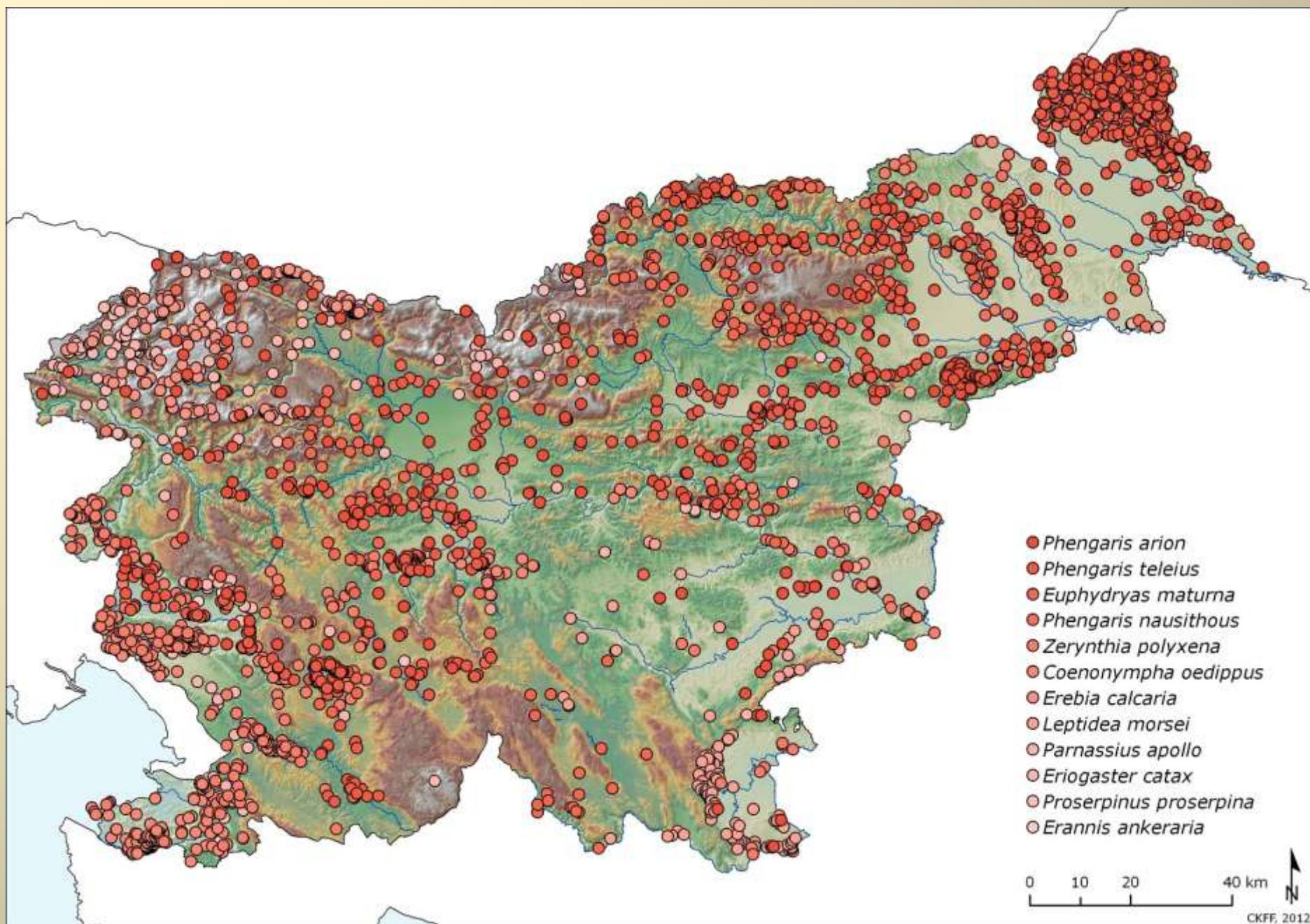


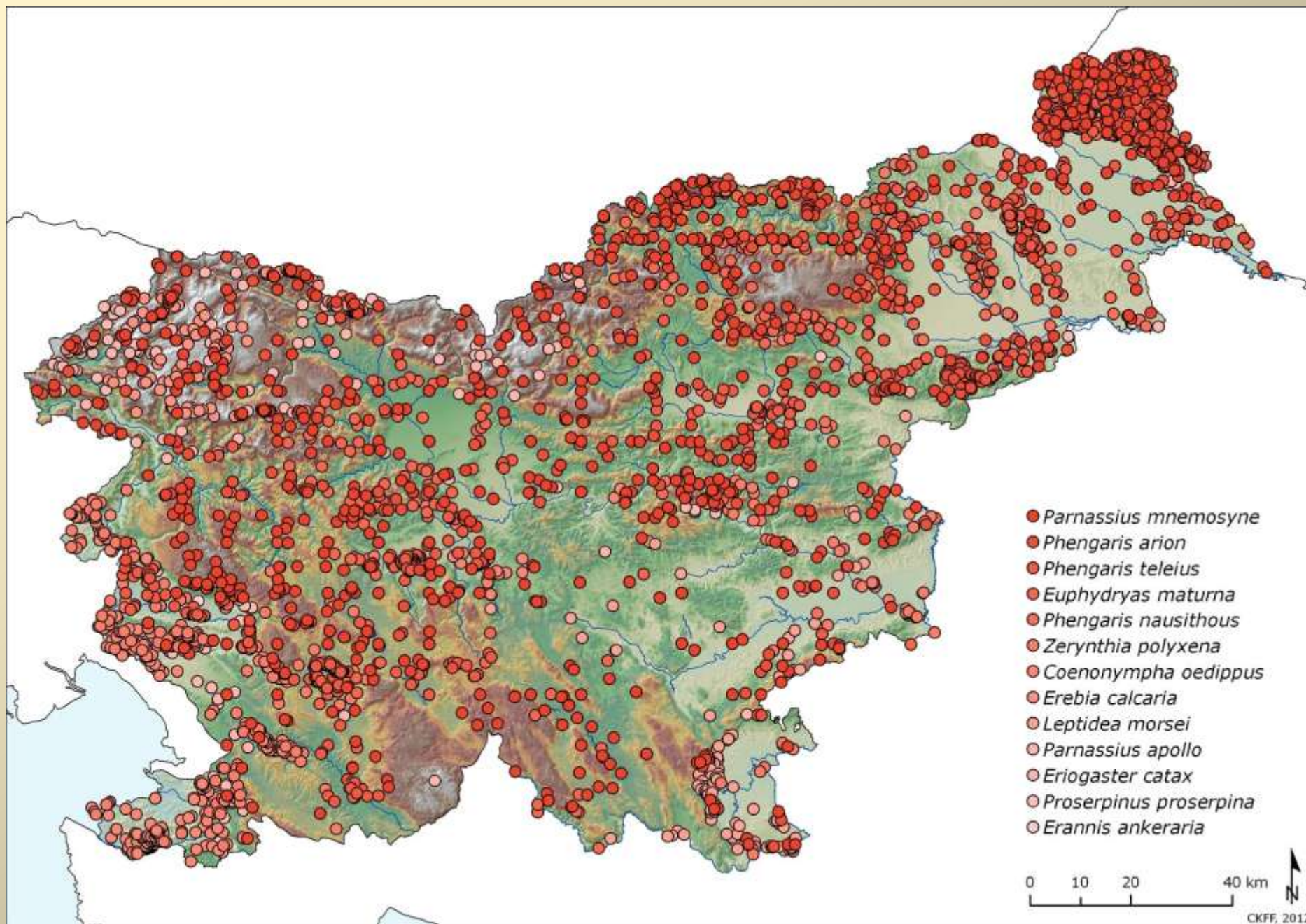


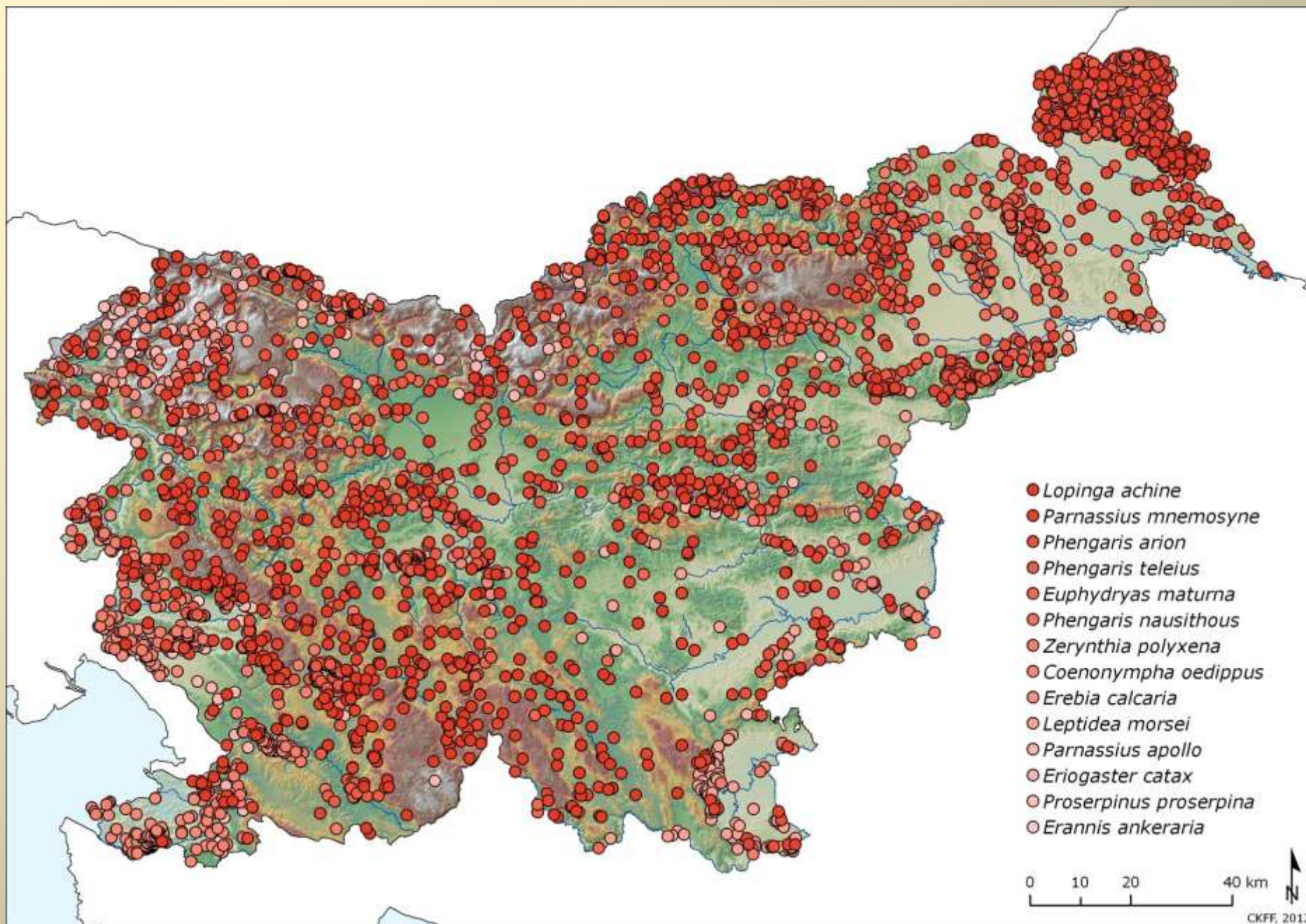


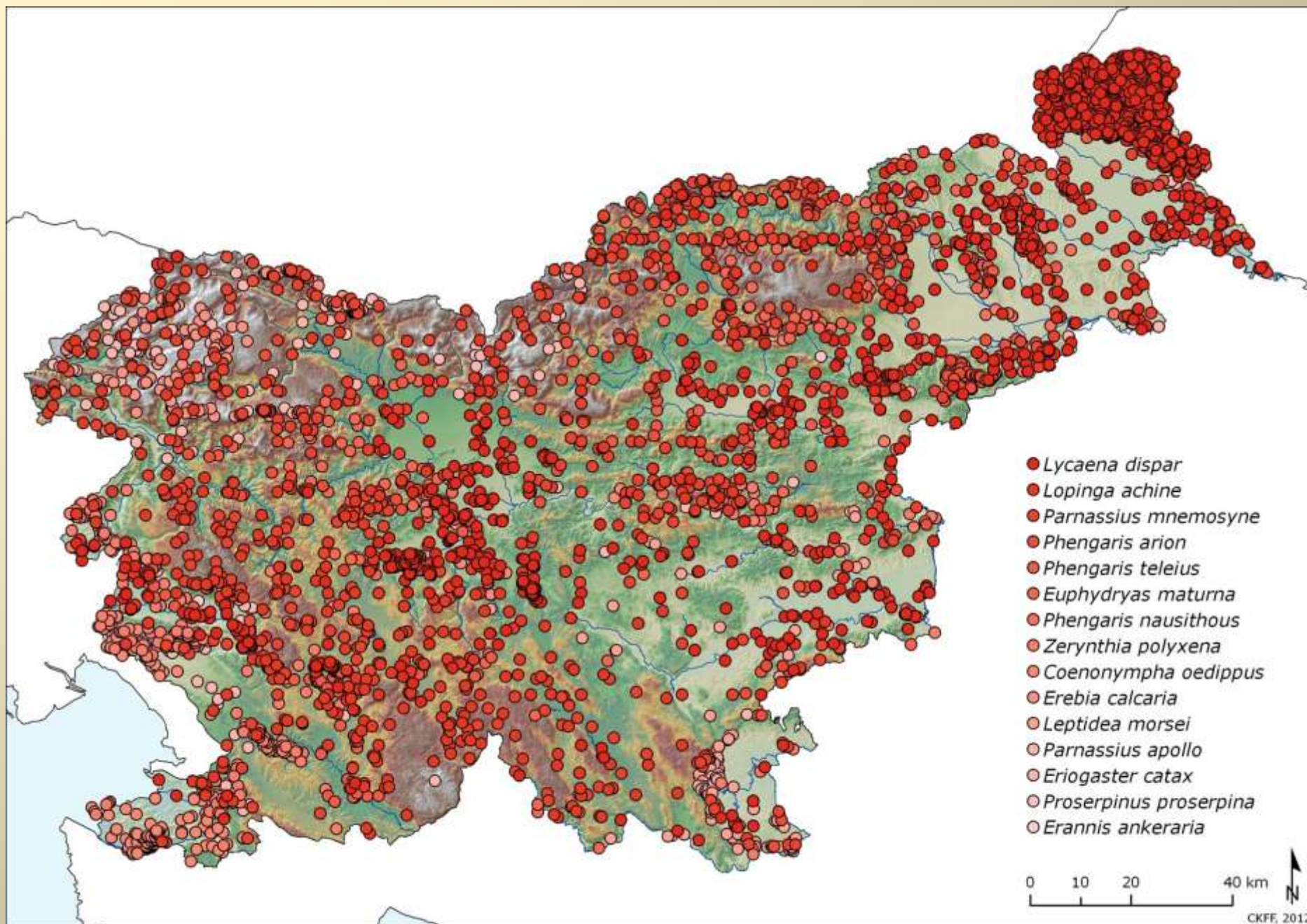


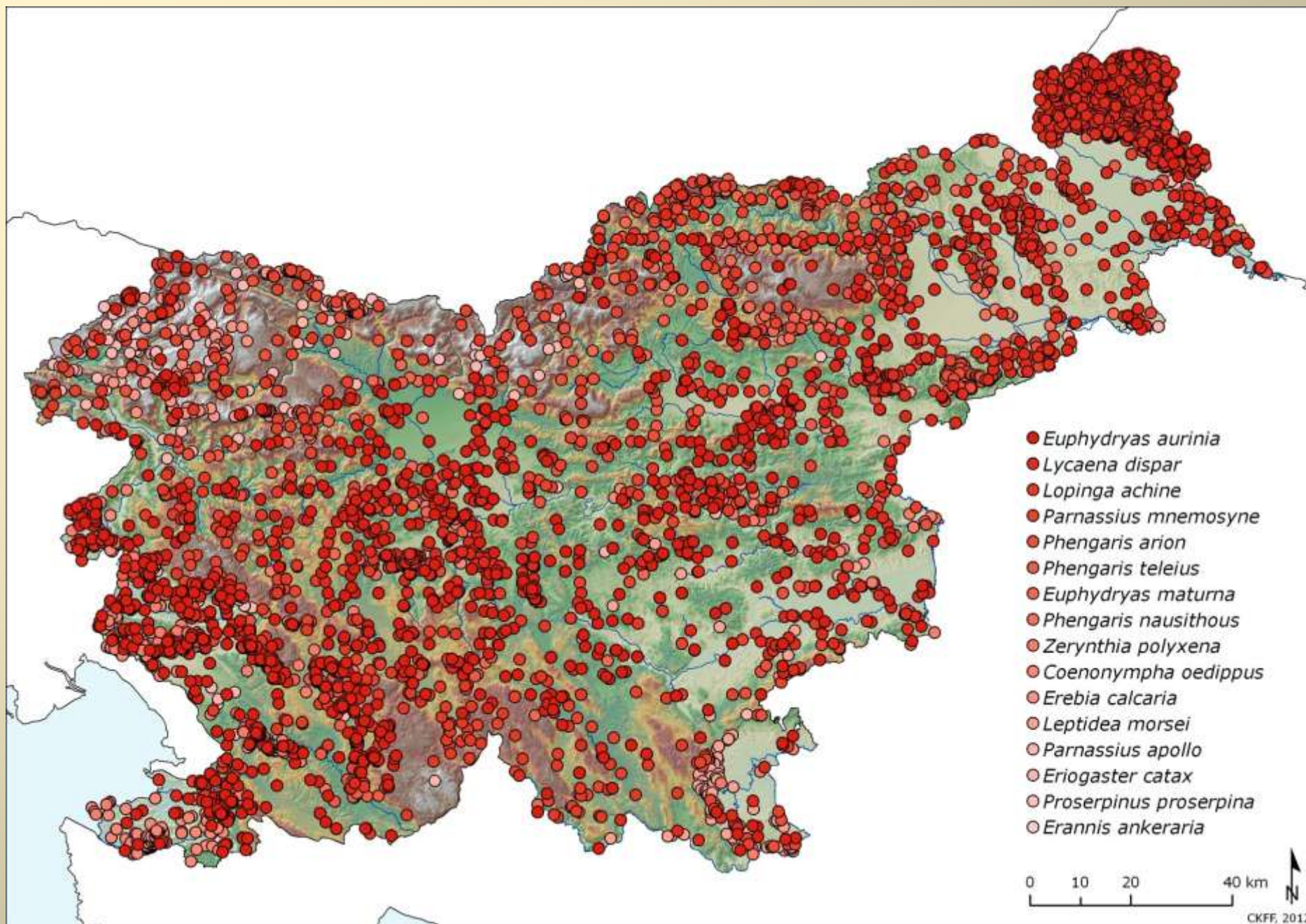


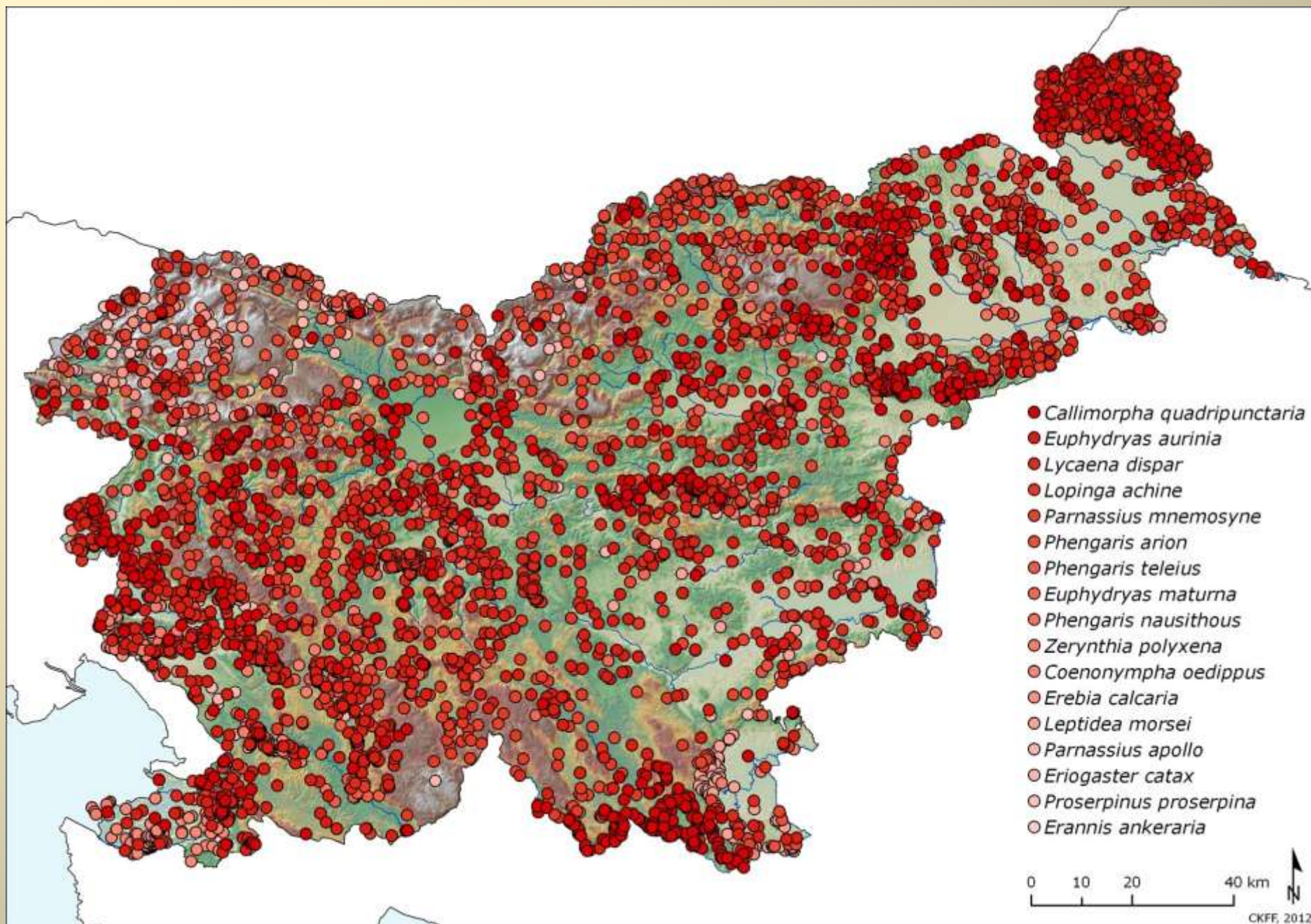












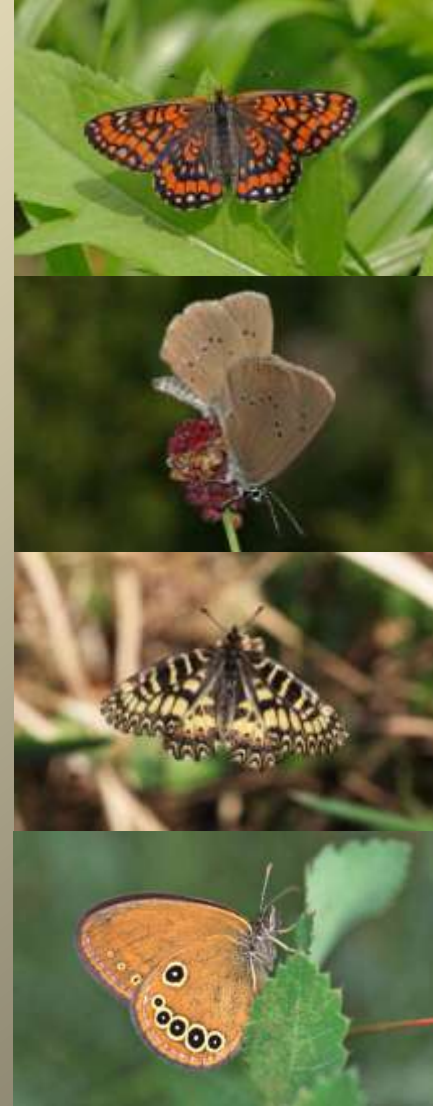
Number of records after 1990: 14171

Numner of localities after 1990: 6268

METHODS

Three levels of monitoring:

- monitoring of selected populations (MRR, transects)
- monitoring of selected core areas of distribution
- monitoring of isolated populations



Monitoring of selected populations

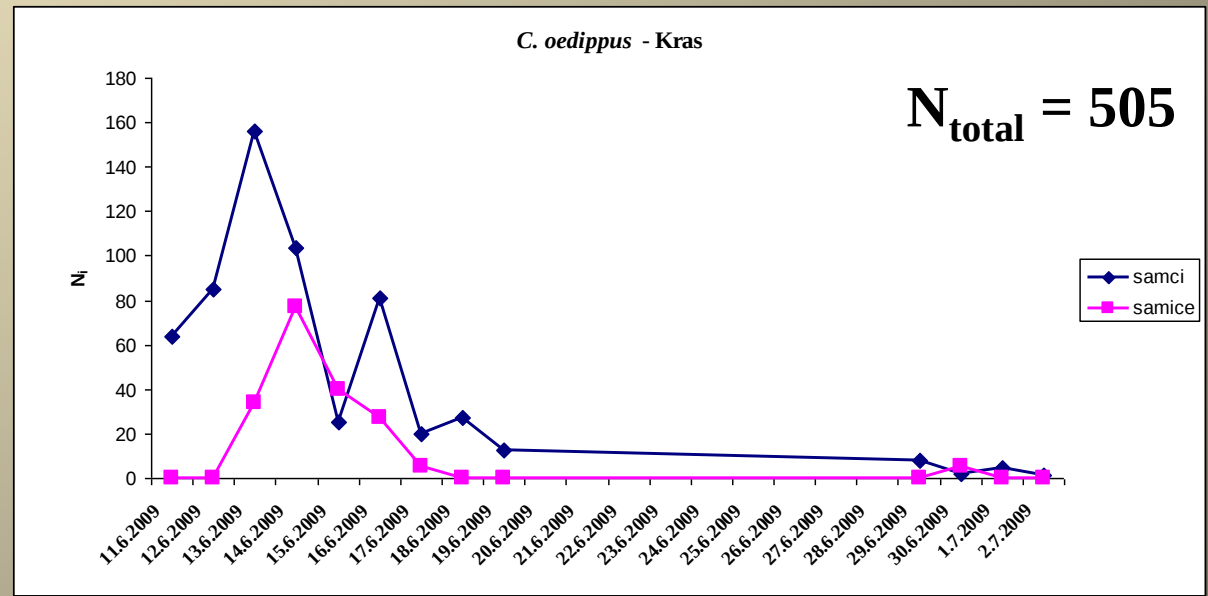
- MRR:**
- species appearing locally in large densities
 - time consuming (up to 14 field days)



Coenonympha oedippus



NW part of Kras

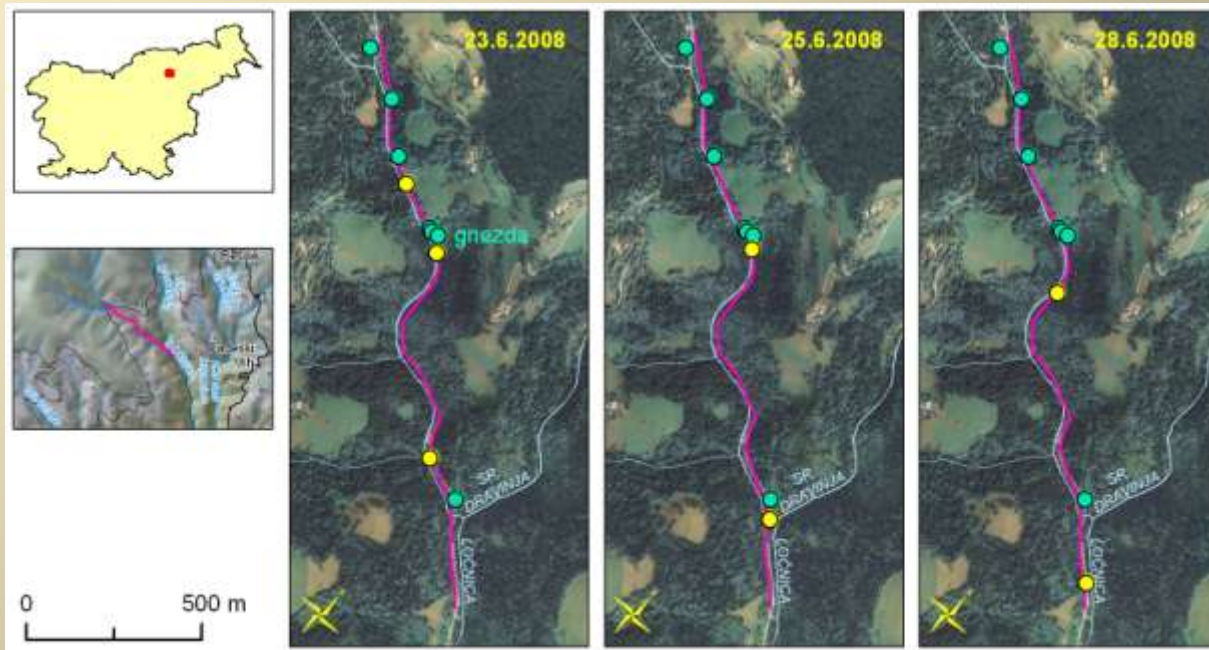


Transect monitoring

- suitable for more mobile species
- three visits at maximum abundance
- only relative abundances



Euphydryas maturna



Average: $7,0 \pm 6,24$

Maximum: 14

No. of nests: 7

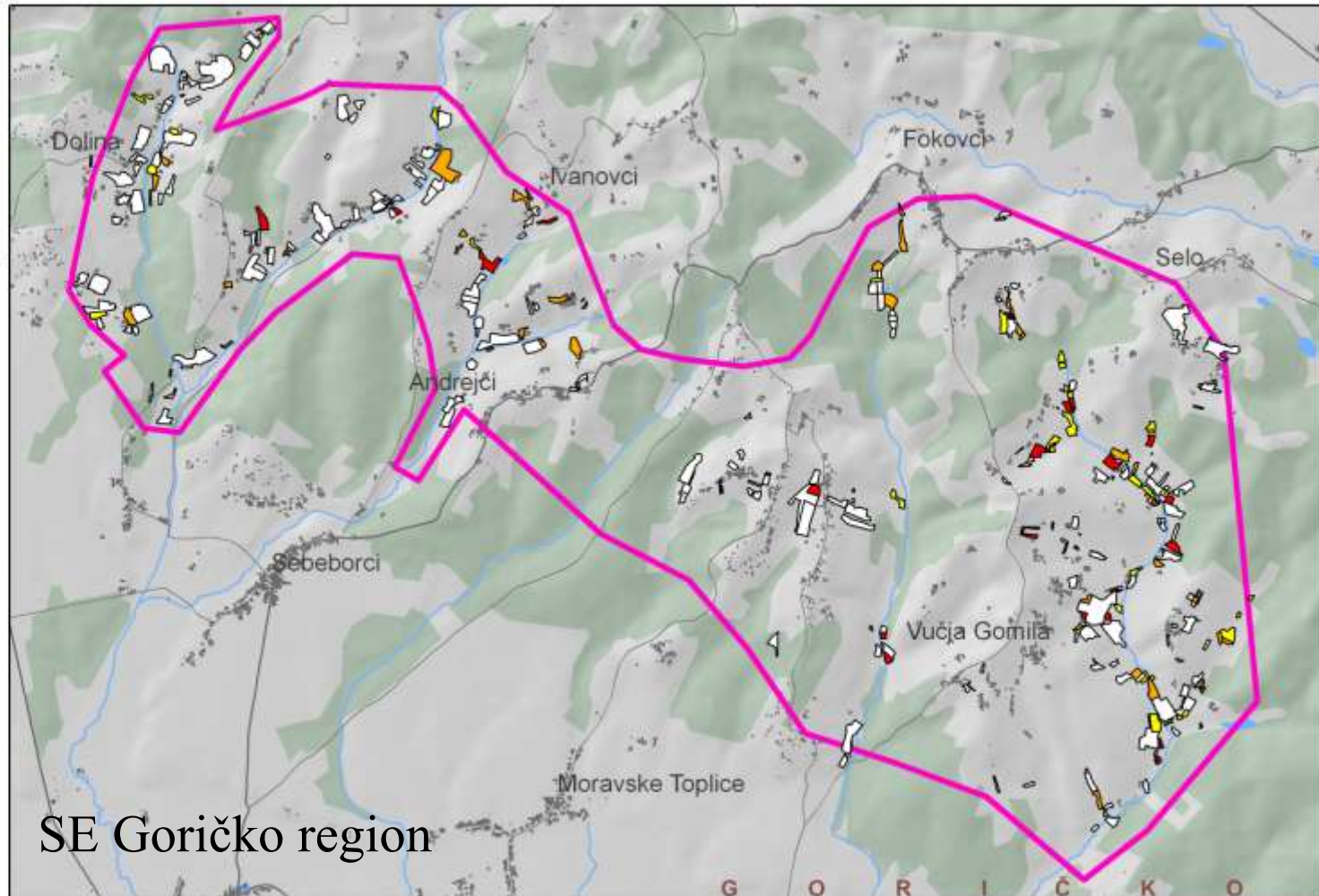
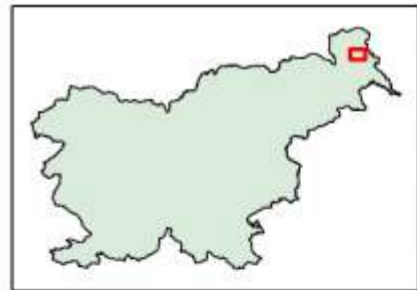
SW part of Pohorje Mts.

Monitoring of core areas (patch occupancy)

- inventory of all suitable habitat patches
- single counts of adults at each patch



Phengaris teleius



SE Goričko region

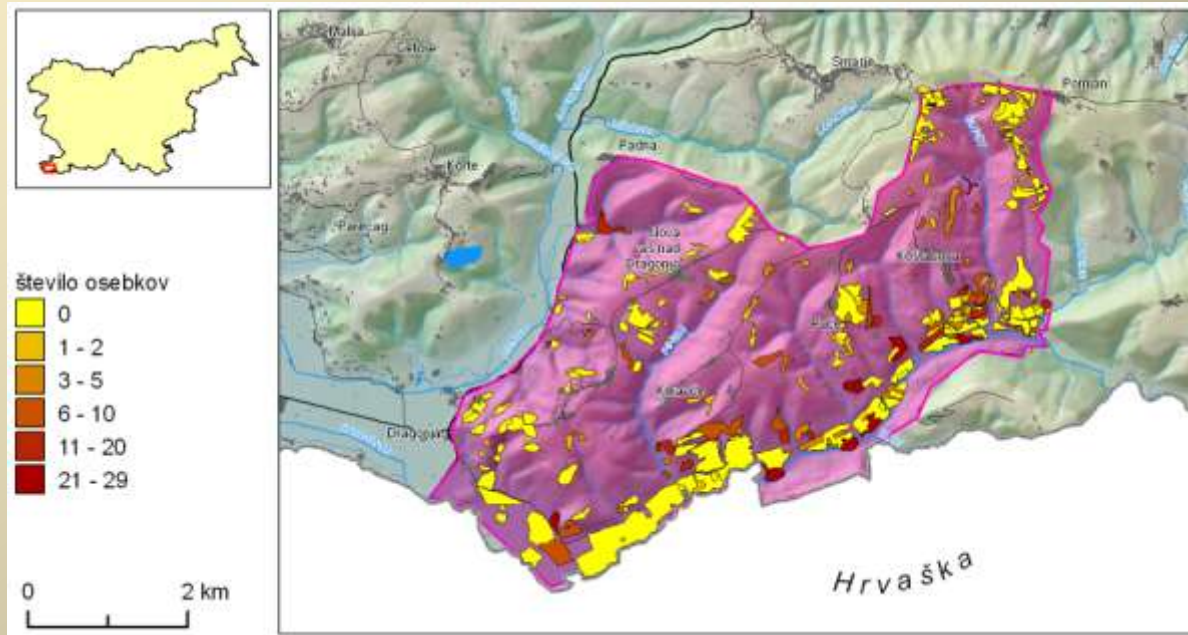
G O R I Č K O

Monitoring of core areas (patch occupancy)

- identification of all suitable habitat patches
- single counts of adults at each patch



Coenonympha oedippus



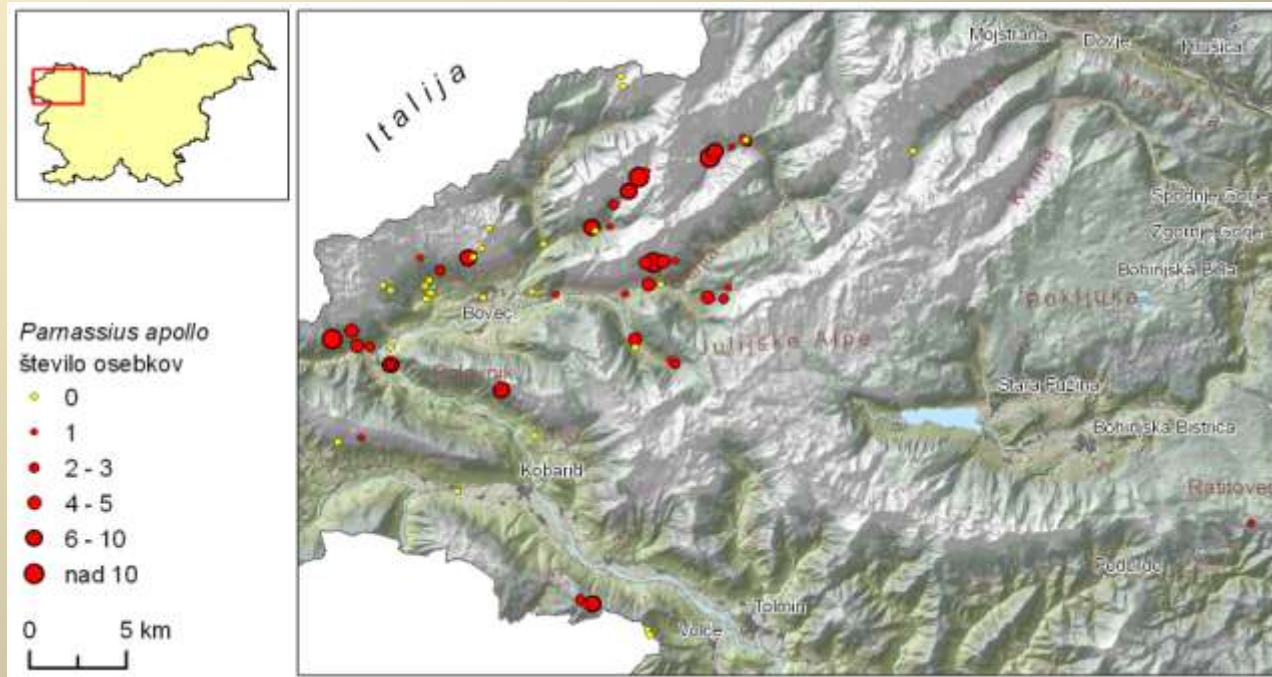
Coastal region – Dragonja valley

Monitoring of isolated populations (occurrence)

- survey of known sites
- single counts of adults at each site
- threats and negative changes recorded



Parnassius apollo



Overview (2008 – 2011)

Type of monitoring	populations	core areas	isolated populations	frequency
HD II.				
<i>Callimorpha quadripunctaria</i>	transects (2x3)	2x	-	6 y
<i>Coenonympha oedippus</i>	MRR (2x)	2x	31	4 y
<i>Colias myrmidone</i>	-	-	6	5 y
<i>Erannis ankeraria</i>	-	1x	-	
<i>Erebia calcaria</i>	-	1x	5	5 y
<i>Eriogaster catax</i>	-	4x	14	2 y
<i>Euphydryas aurinia</i>	-	-	-	
<i>Euphydryas maturna</i>	transects (3x3)	3x	35	4 y
<i>Leptidea morsei</i>	-	1x	18	3 y
<i>Lycaena dispar</i>	-	4x	96	5 y
<i>Phengaris nausithous</i>	MRR (2x)	2x	18	2 y
<i>Phengaris teleius</i>	MRR (3x)	4x	90	2 y
HD IV.				
<i>Lopinga achine</i>	-	-	-	
<i>Maculinea arion</i>	-	2x	168	3 y
<i>Parnassius apollo</i>	transects(1x1)	1x	49	2 y
<i>Parnassius mnemosyne</i>	-	-	-	
<i>Proserpinus proserpina</i>	-	-	-	
<i>Zerynthia polyxena</i>	-	3x	38	5 y

First results

Phengaris teleius

MRR

Site	Year	No. of days	N _{tot}	95% low	95% upp	change
Goričko-Motvarjevci	2008	15	1799	1533	2156	
Goričko-Motvarjevci	2011	16	1592	1373	1890	12% decline
Volčeke	2008	15	1835	1476	2336	
Volčeke	2011	12	2777	2280	3485	49% increase



Patch occupancy

Site	Year	No. of patches	No. occupied	% occupied	change occupancy	change habitat
Nanoščica	2008	39	35	90%		
Nanoščica	2011	35	31	89%	11% decline	1% decline
Lj. Barje	2008	54	33	61%		
Lj. Barje	2011	59	0	0%	100% decline	9% increase
Sl. Gorice	2008	37	8	22%		
Sl. Gorice	2011	46	20	44%	150% increase	24% increase
Goričko	2008	154	71	46%		
Goričko	2011	154	102	66%	44% increase	no change

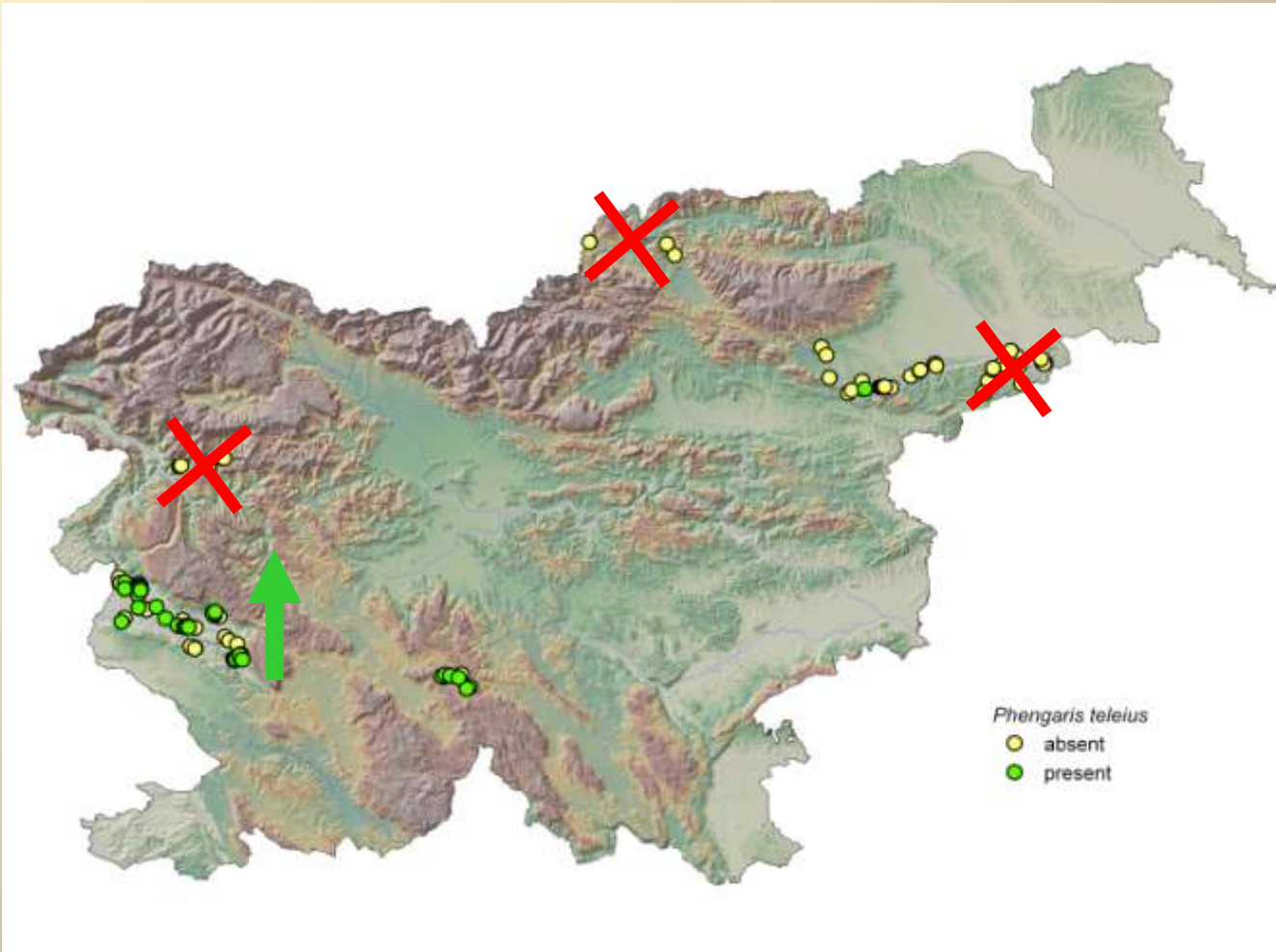
Isolated sites

Year	No. of sites	No. of suitable sites	No. of occupied sites	% occupied	change occupancy	change habitat
2008	151	98	20	20%		
2011	141	87	51	59%	155% increase	13% decline

First results

Phengaris teleius

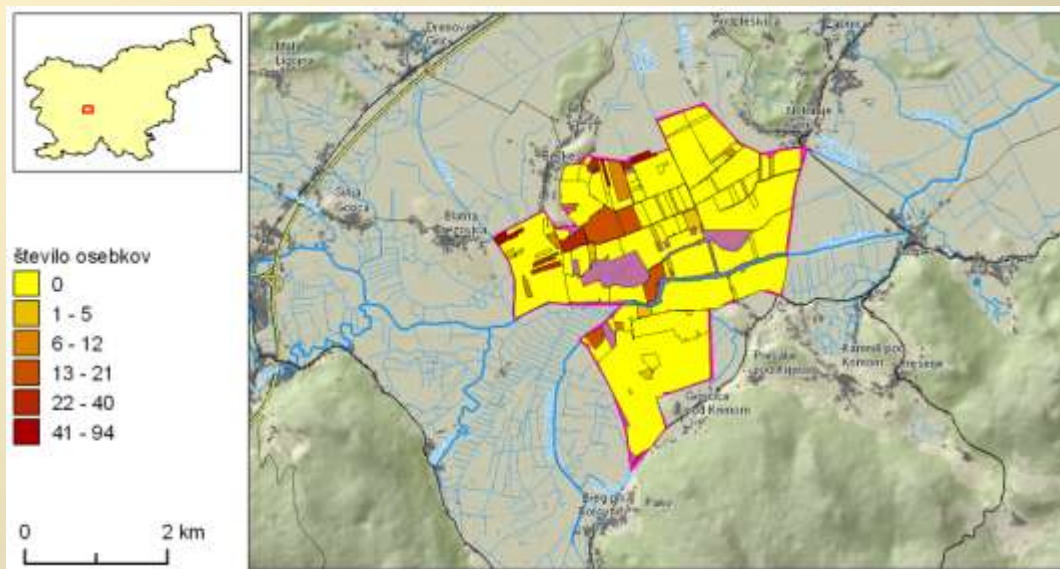
Isolated sites



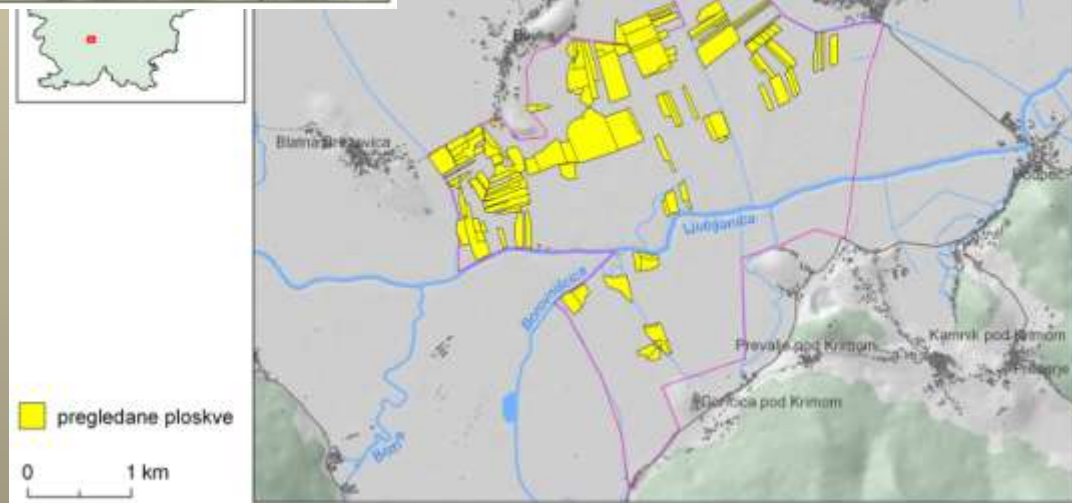
First results

Phengaris teleius

2008



Ljubljansko barje



2011

First results



Floods in Ljubljansko barje in September 2010.



Acknowledgments!

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Thank you!