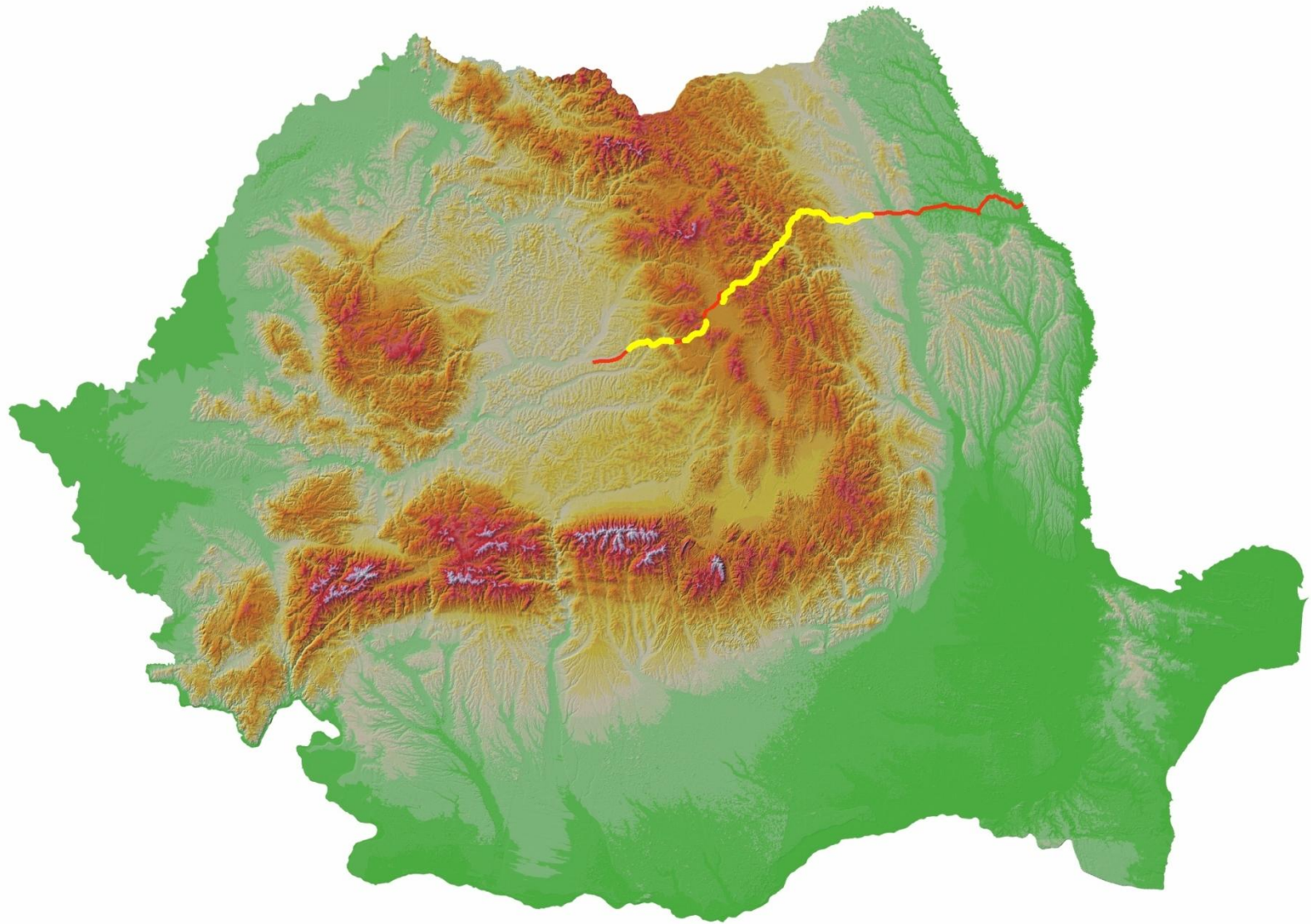


TRANSGREEN Pilot area 4: Targu Mures – Iasi (Romania)

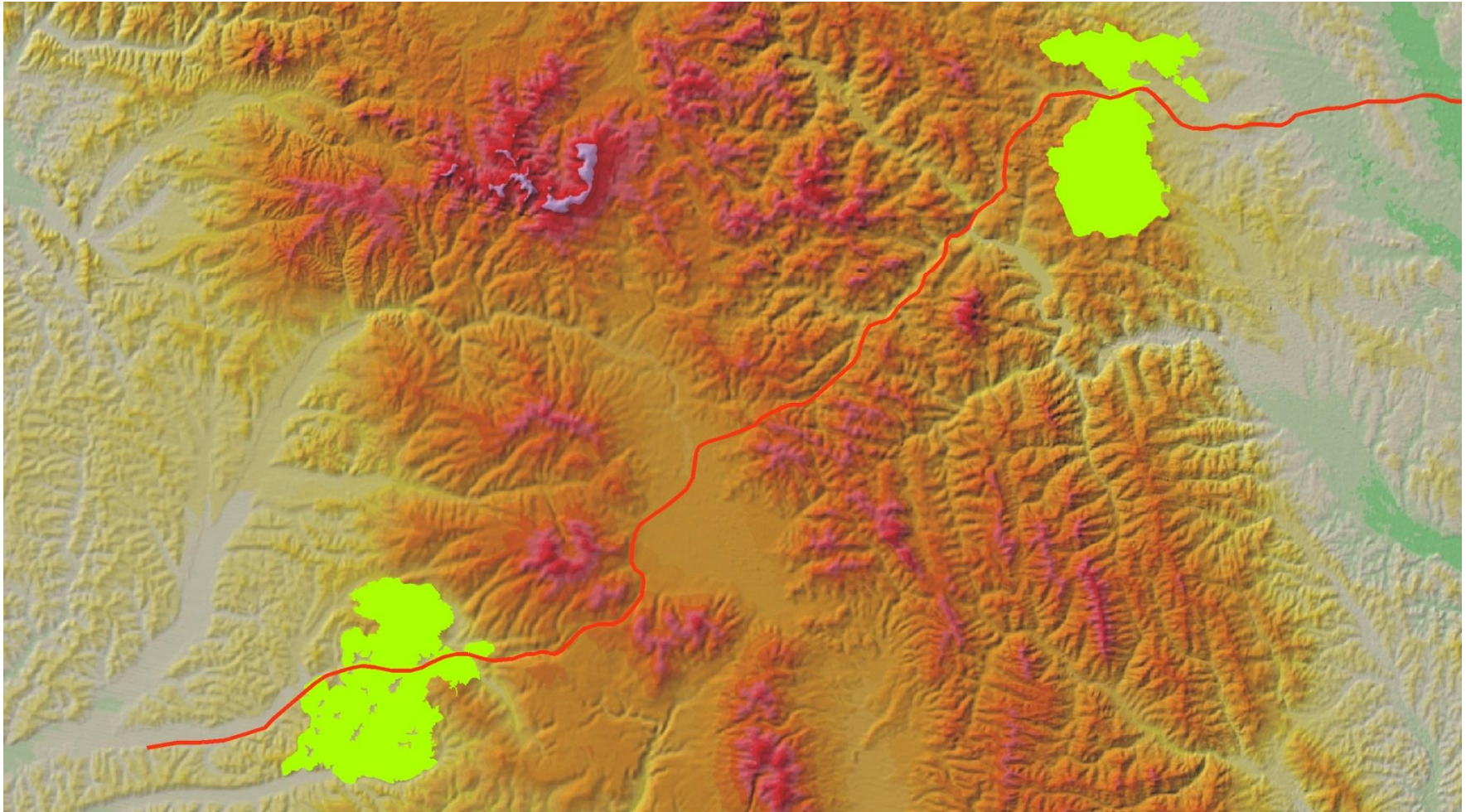
Csaba Domokos
Milvus Group

Vienna, February 28th 2017

Targu Mures – Iasi – Ungheni planned highway and segments of interest with potential future fragmentation hotspots for large carnivore species

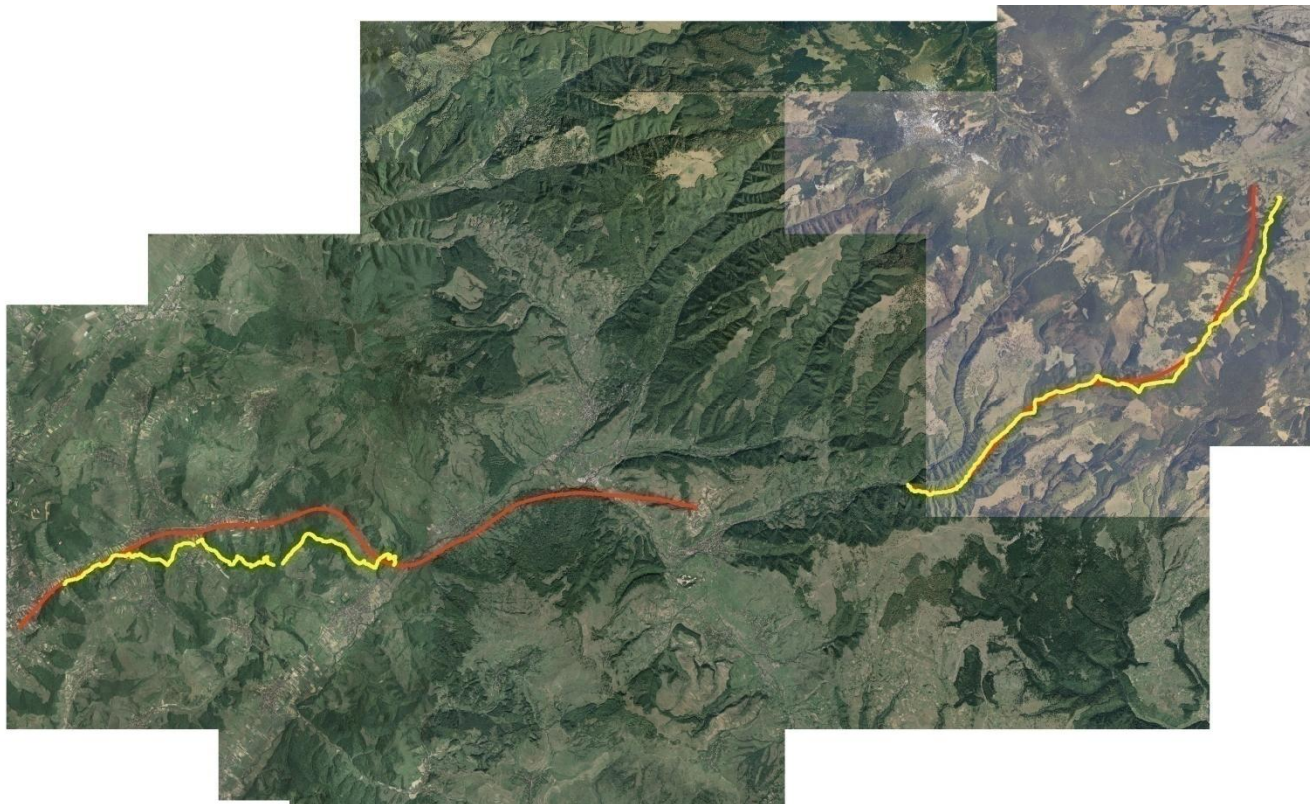


Targu Mures – Iasi – Ungheni planned highway and the area of interest

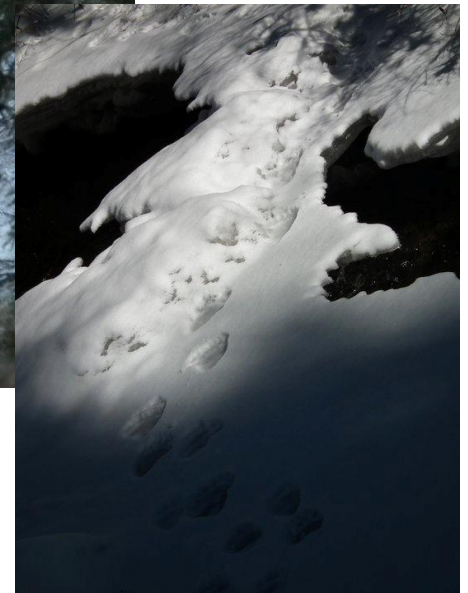
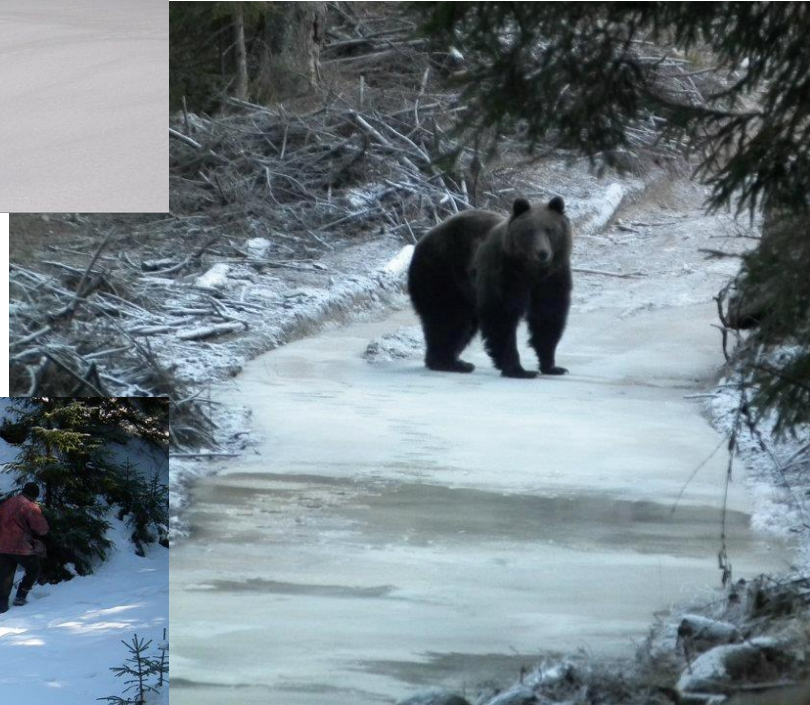


Targu Mures – Iasi – Ungheni planned highway and previous work (1)

- survey focusing exclusively on brown bears (*Ursus arctos*), in 2011-2012
- monthly monitoring of transects (divided into 100 m long segments) roughly following the planned highway route – total of 22 months (except Decembers)
- signs of bear presence and activity recorded after an on-the-field filtering (to avoid “double counting”)
- habitat selection and use analysis performed after the end of the fieldwork



Targu Mures – Iasi – Ungheni planned highway and previous work (1)



Targu Mures – Iasi – Ungheni planned highway and previous work (1)

- final dataset comprises:

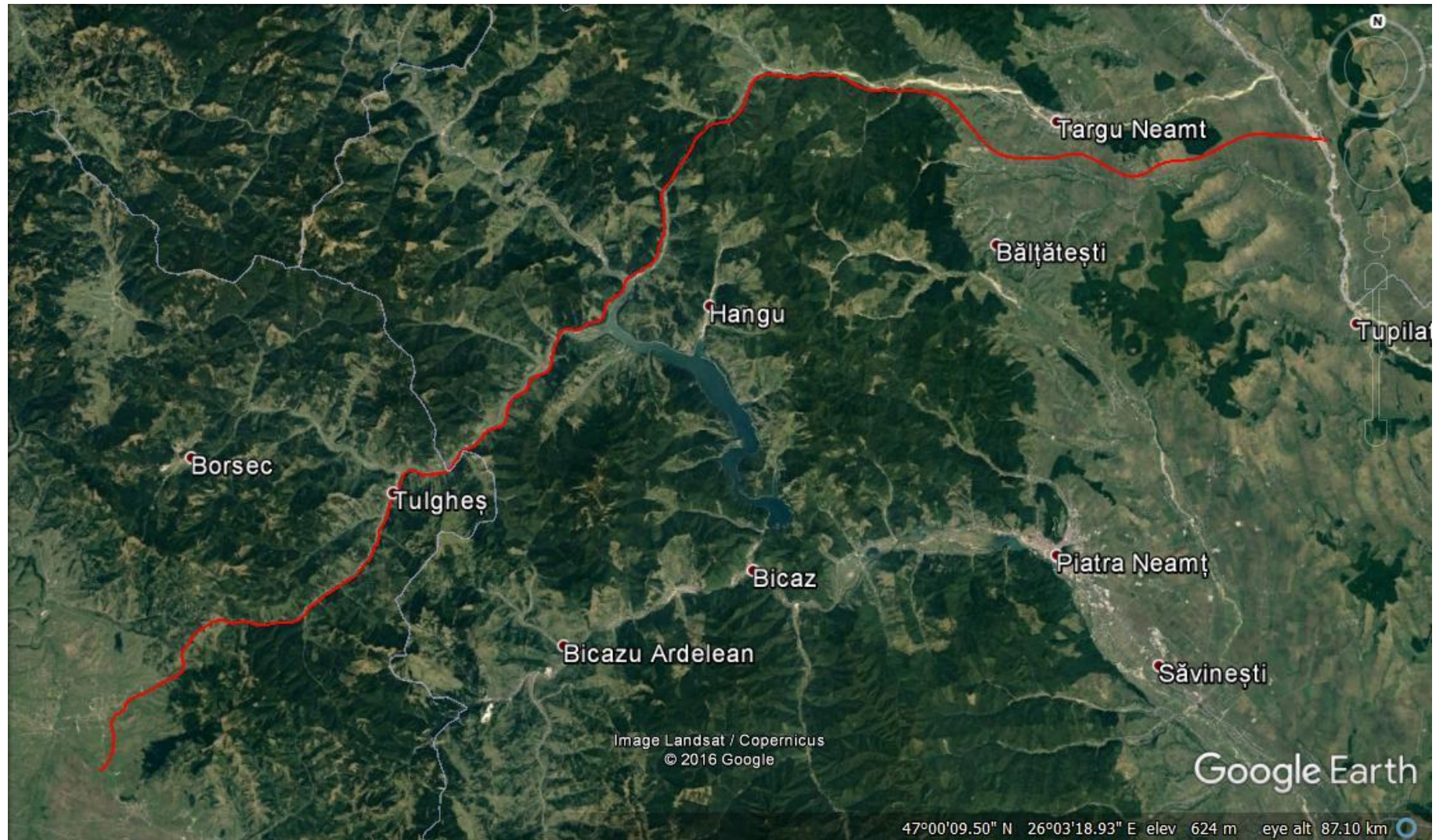
974 spatially-referenced records of bear activity/presence (480 in the foothill and 494 in the mountain study areas) → documenting habitat selection and use along the planned highway

records converted into presence-absence data for each 100 m long transect segment → occupancy modelling

Manuscript in work



Targu Mures – Iasi – Ungheni planned highway and previous work (2)



Targu Mures – Iasi – Ungheni planned highway and previous work (2)

Different approach: hairtrapping for bears + tracking for bears, wolves (*Canis lupus*) and lynx (*Lynx lynx*)

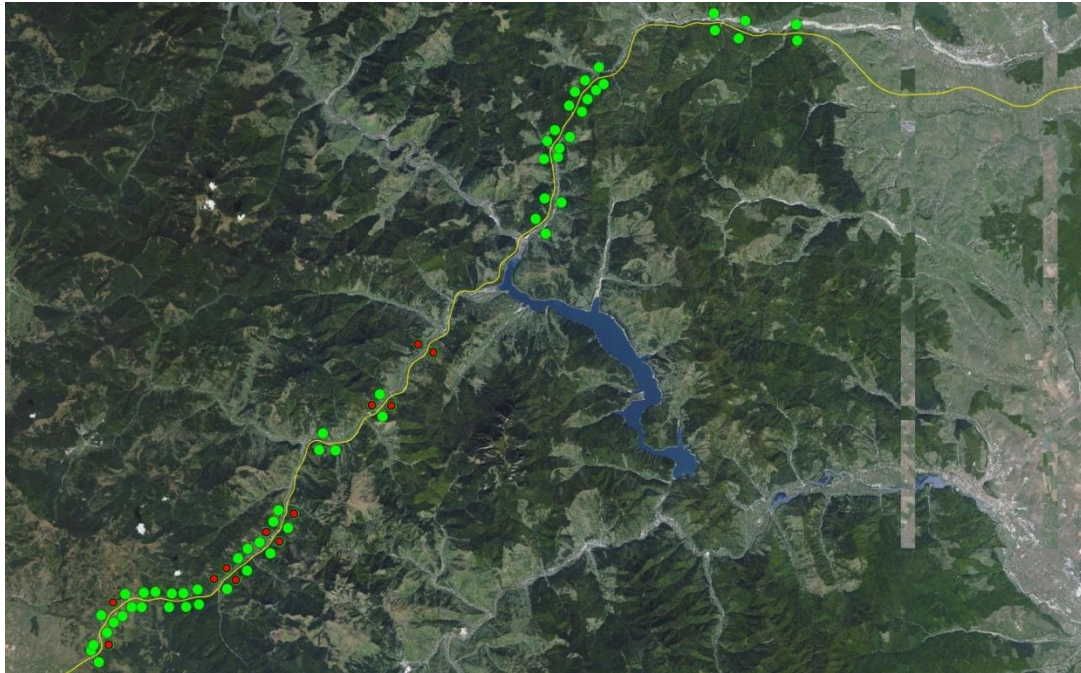
Hairtrapping for bears in 3 phases: 2014, 2017 and 2020

Tracking for all 3 LC species in 1 phase: 2015

During the TransGreen project lifetime, only partial results will be available!



Targu Mures – Iasi – Ungheni planned highway and previous work (2)



2014 hairtrapping session:

June 22 – July 26

From the planned 74 hair traps, 68 were active for 17 days each (=1156 trapping days) – the rest were taken down by locals or not mounted

12 successful traps – 12 samples analyzed by the Conservation Genetics Group at the Senckenberg Research Institute (Germany)

3 closely related animals were detected, 2 on one side of the planned highway and 1 on the other

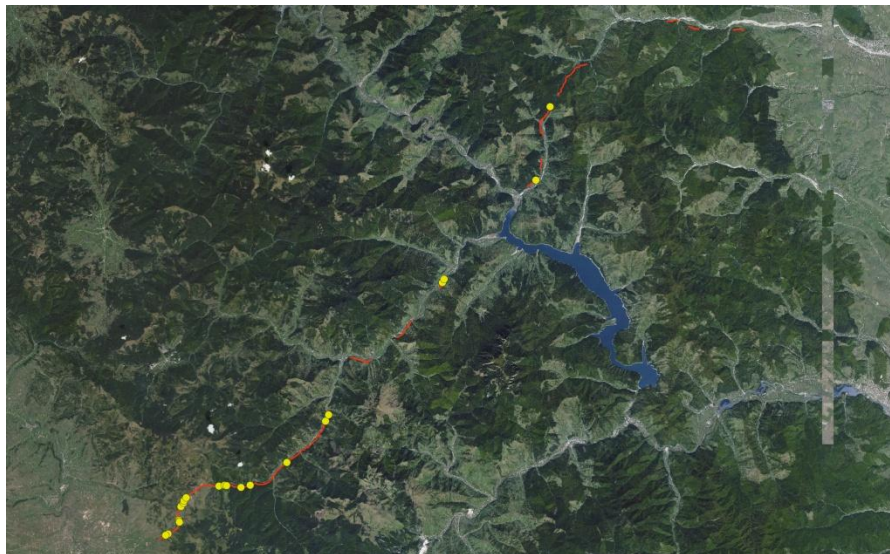
Lab ID	Collected at	Haplotype	Sex		1st grade relatedness*
UD001	Hairtrap A06	BG1	m	A	
UD002	Hairtrap A13	Ro2	f	B	
UD003	Hairtrap A14	Ro2			
UD004	Hairtrap A18	Ro2	m	C	E, G
UD005	Hairtrap A23	BG1			
UD006	Hairtrap A25	BG1	f	D	
UD007	Hairtrap B03	BG1	f	E	C, G
UD008	Hairtrap B14	BG1	f	F	
UD009	Hairtrap B18	Ro2	m	G	C, E
UD010	Hairtrap B20	BG1	m	H	
UD012	Hairtrap B24	BG1	m	I	
UD013	Hairtrap B25	BG1			

Targu Mures – Iasi – Ungheni planned highway and previous work (2)



Segments surveyed with hair traps were also surveyed by tracking in April 30 – May 5, 2015

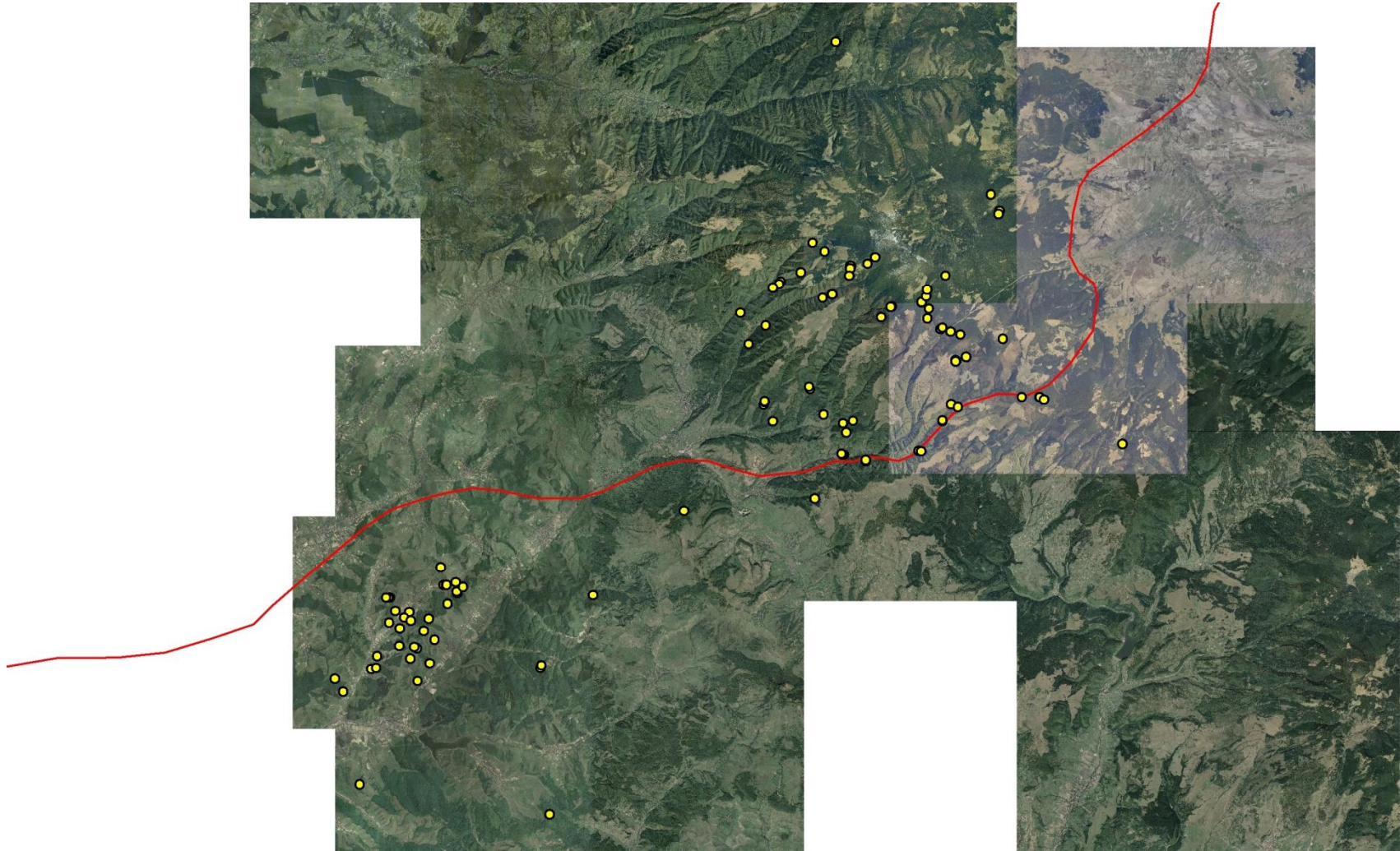
Bear presence



Wolf presence



Targu Mures – Iasi – Ungheni planned highway and previous work (3)
Additional scientific data that can potentially be used to argue the necessity
of implementing fragmentation mitigation measures



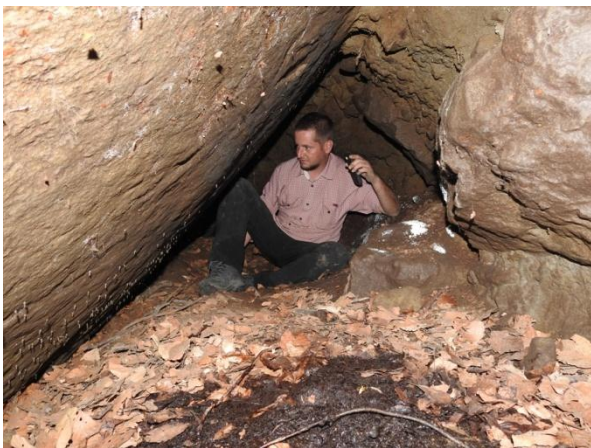
Targu Mures – Iasi – Ungheni planned highway and previous work (3)
Additional scientific data that can potentially be used to argue the necessity
of implementing fragmentation mitigation measures



Bear den mapping and measurement between 2008-2013 and 2015-2017

So far a total of 102 dens and 7 “open nests” localized and measured

Fieldwork will be finalized in April 2017



Manuscript in work:

den characteristics

denning chronology

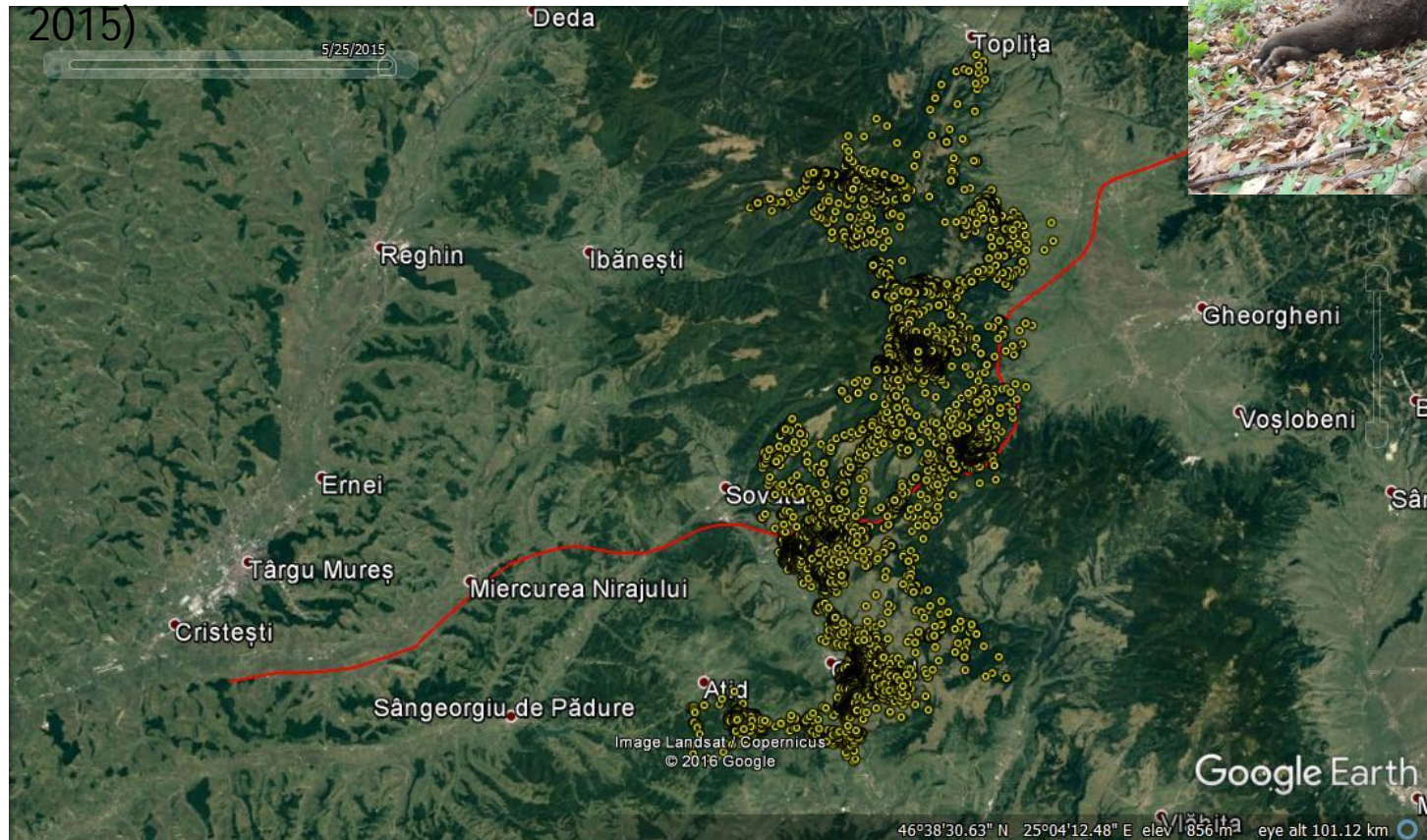
habitat suitability modelling for dens – will probably also indicate areas that overlap with or are in the immediate vicinity of the planned highway

recommendations section – will probably contain a reference to the planned highway

Targu Mures – Iasi – Ungheni planned highway and previous work (4)
Additional scientific data that can potentially be used to argue the necessity
of implementing fragmentation mitigation measures

Telemetry data analysis will not be finalised before the
end of Transgreen, but we can still use snapshots to
“convince” relevant authorities

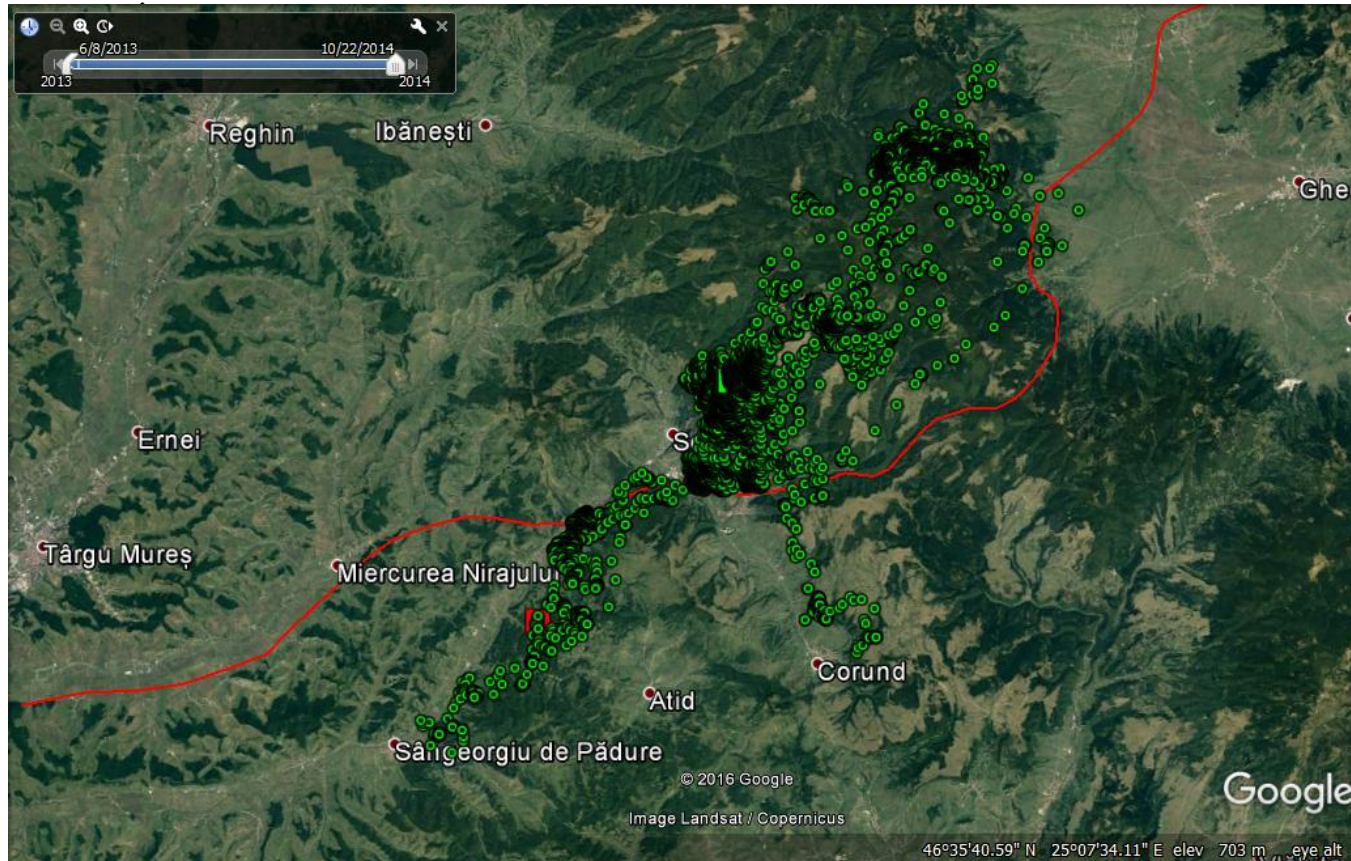
Telemetry data from M2 (April 30, 2013 – May 25,
2015)



Targu Mures – Iasi – Ungheni planned highway and previous work (4)
Additional scientific data that can potentially be used to argue the necessity
of implementing fragmentation mitigation measures

Telemetry data analysis will not be finalised before the
end of Transgreen, but we can still use snapshots to
“convince” relevant authorities

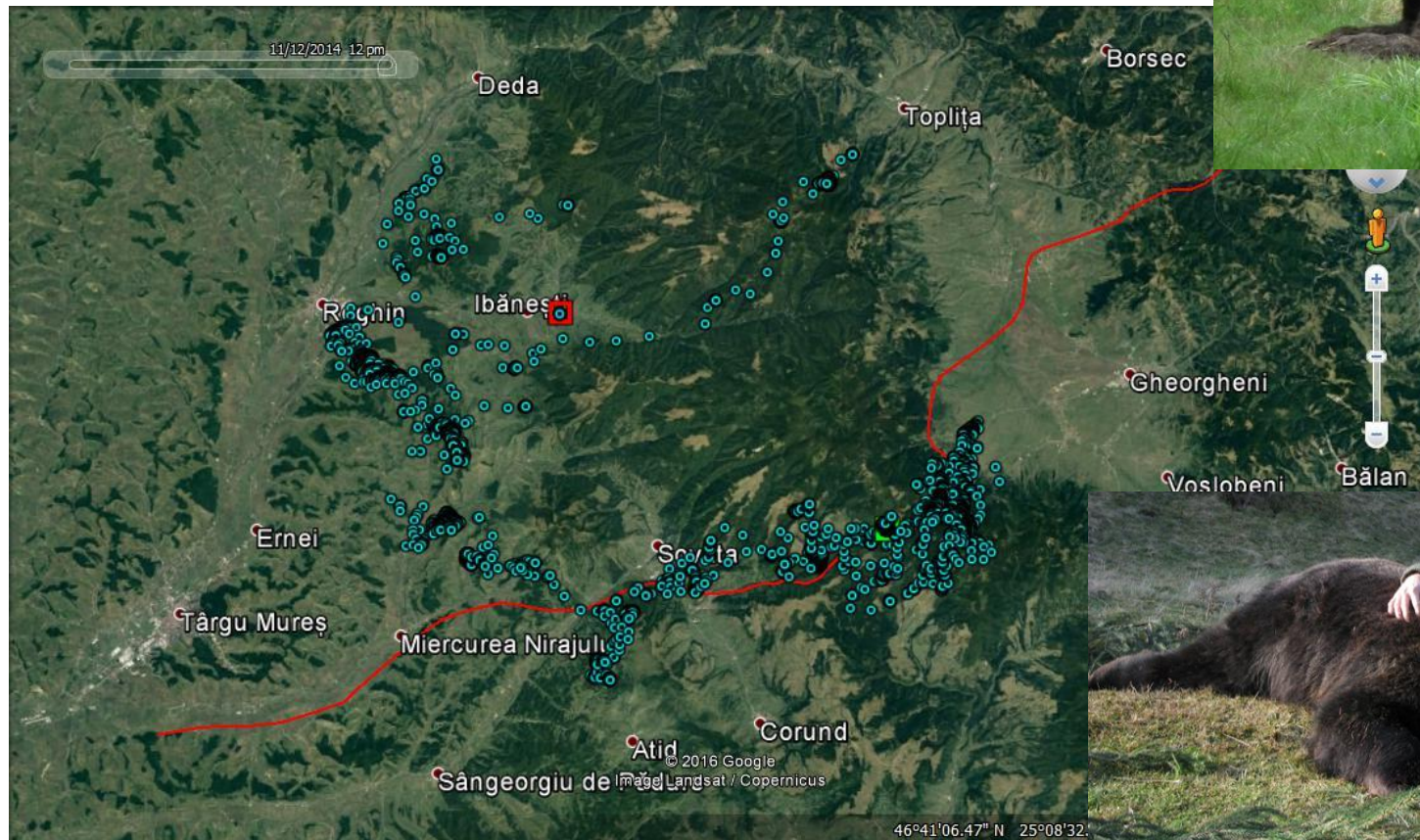
Telemetry data from M3 (April 30, 2013 – May 25,



Targu Mures – Iasi – Ungheni planned highway and previous work (4)
Additional scientific data that can potentially be used to argue the necessity
of implementing fragmentation mitigation measures

Telemetry data analysis will not be finalised before the
end of Transgreen, but we can still use snapshots to
“convince” relevant authorities

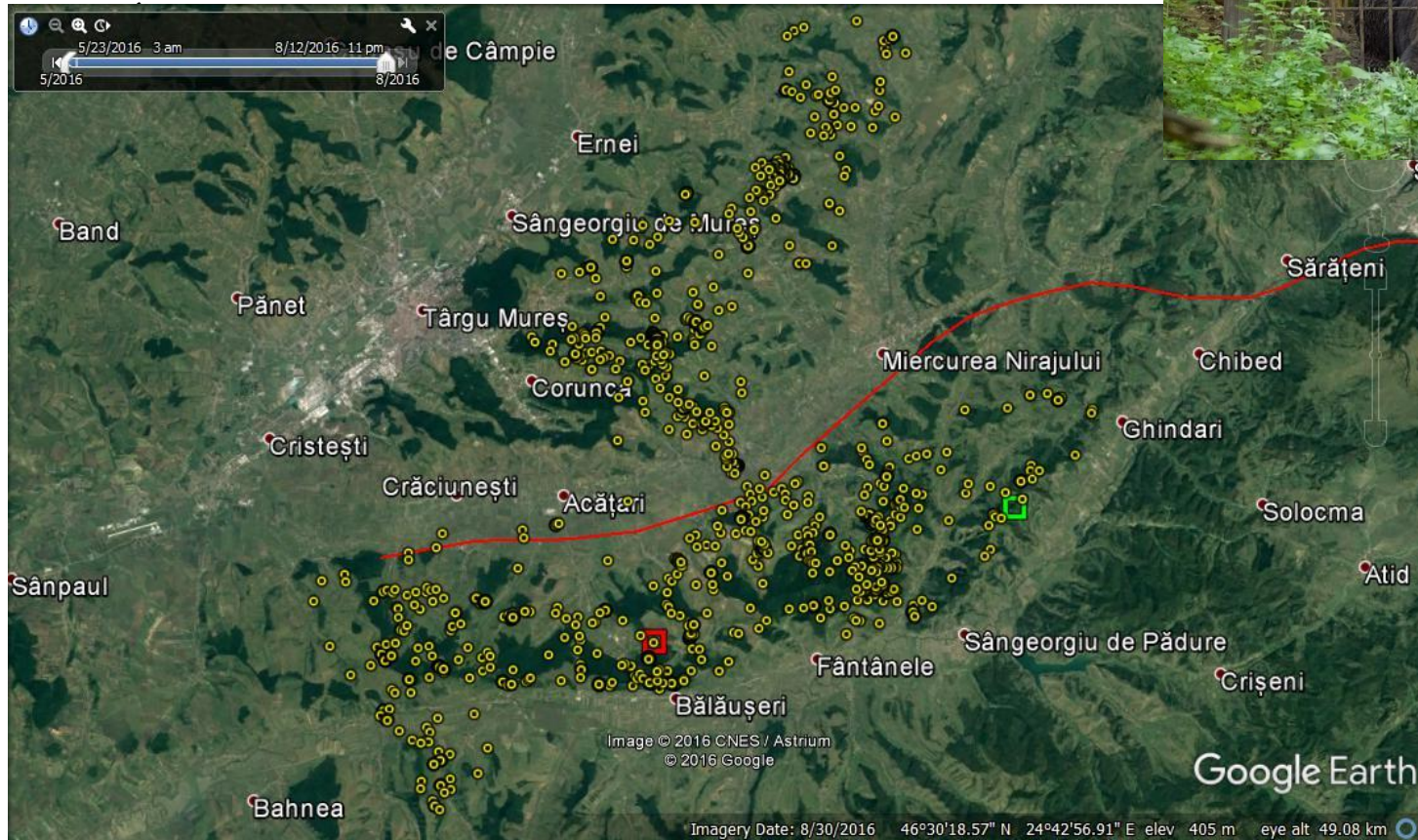
Telemetry data from M6 (May 17, 2014 – November 10, 2014)



Targu Mures – Iasi – Ungheni planned highway and previous work (4)
Additional scientific data that can potentially be used to argue the necessity
of implementing fragmentation mitigation measures

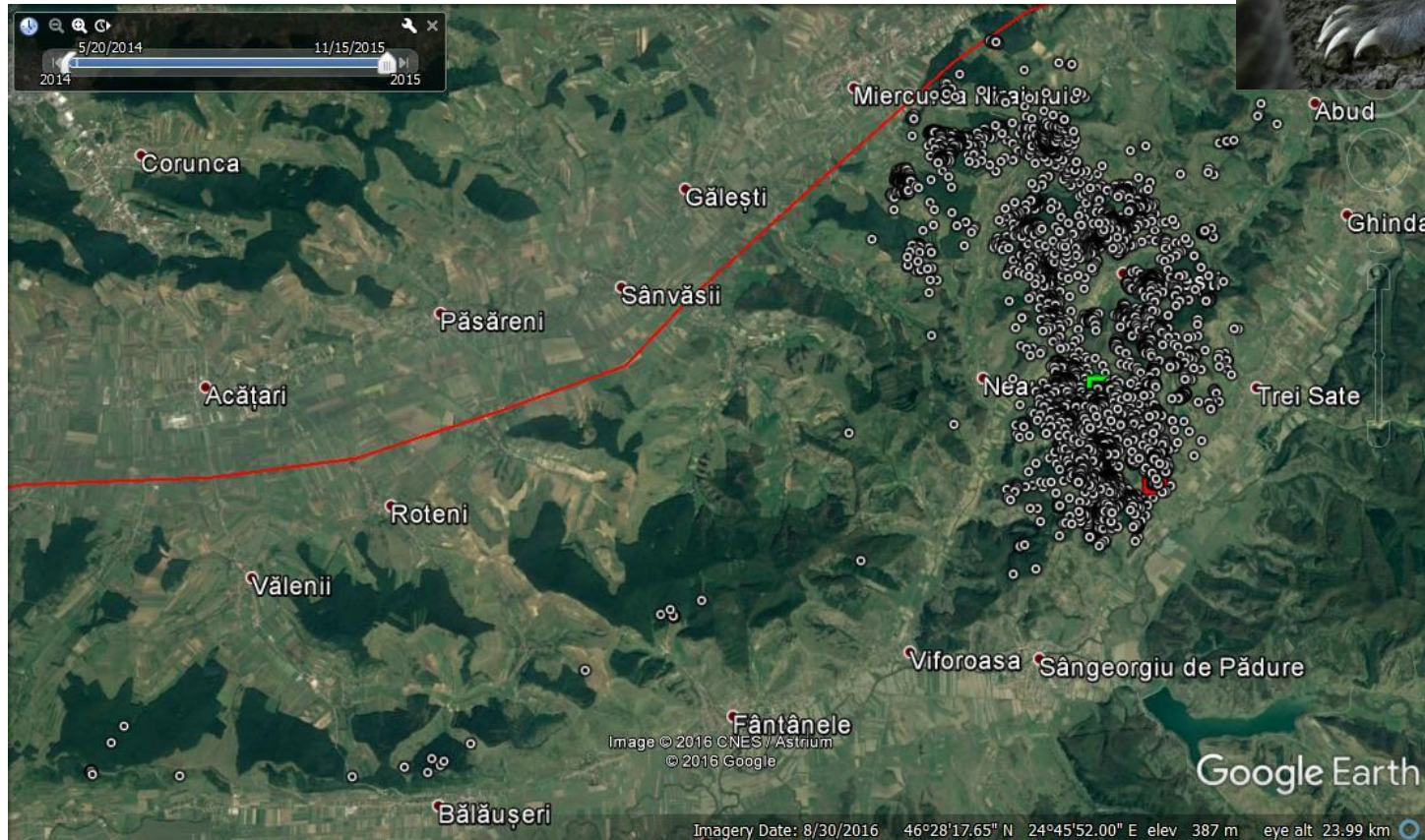
Telemetry data analysis will not be finalised before the
end of Transgreen, but we can still use snapshots to
“convince” relevant authorities

Telemetry data from M9 (May 23, 2016 – August 12,



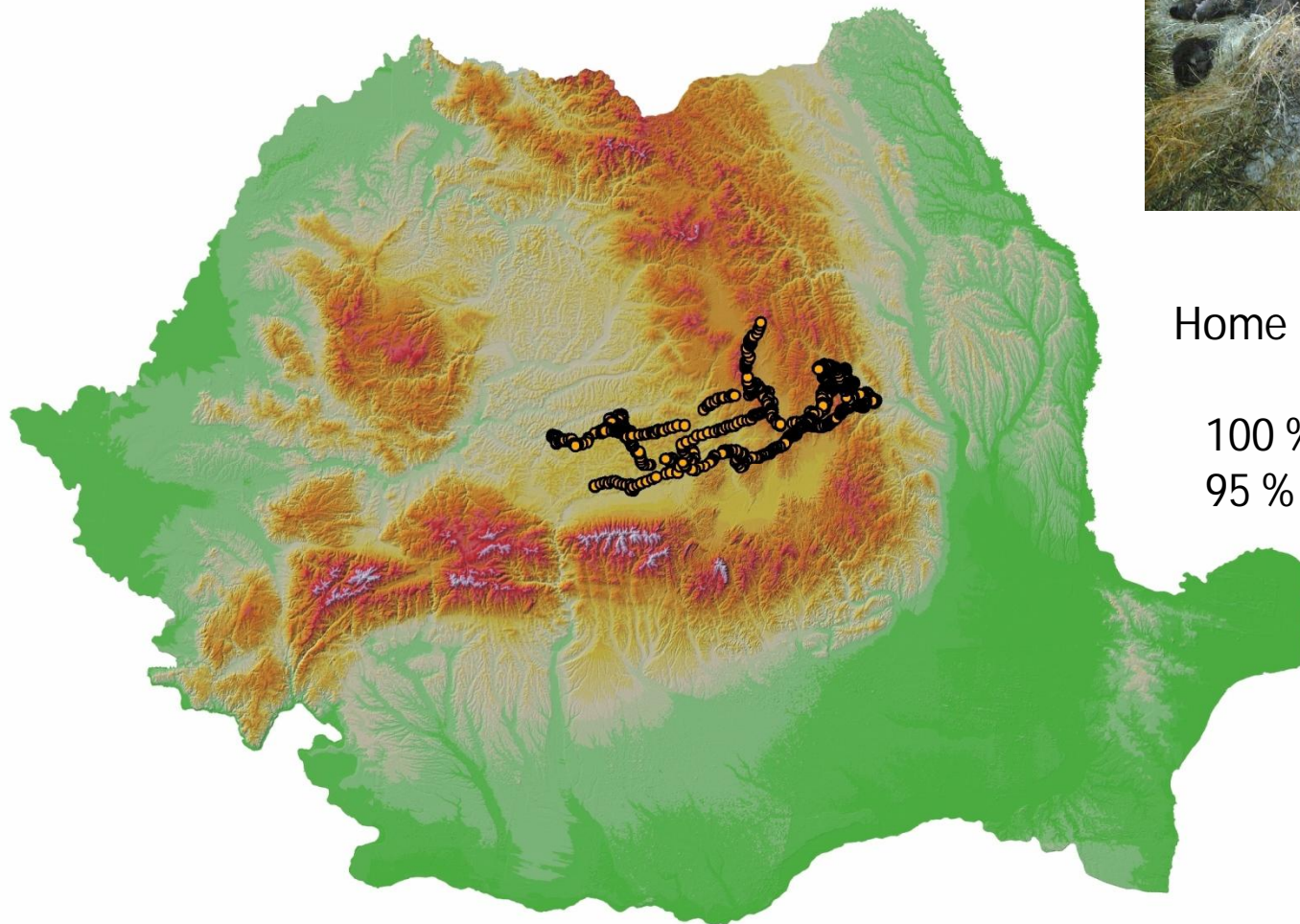
When a highway that only exists on paper already constitutes a total barrier for a bear...

Telemetry data from F1 (May 20, 2014 – November 15, 2015)



Why we consider it important to prevent / mitigate the fragmentation of natural habitats

Telemetry data from M8 (January 13, 2015 – January 9, 2016)



Home range size

100 % MCP: 9117.4 km²

95 % Kernel: 880 km²



Thank you for your attention!

Csaba Domokos, csaba.domokos@milvus.ro

Data provided by the project
"Brown bear conservation and research program in a model area in Romania"
(2006 – ongoing)

