Land use and behavioral patterns of the relocated bears in the South Eastern Romanian Carpathian Mountains

Environment - Landscape - European Identity

2011 Annual Meeting of the Faculty of Geography

Bucharest 4-6 November 2011

Ioan Mihai Pop, Silviu Chiriac, Leonardo Bereczky - LIFE08 NAT/RO/000500 project

LIFE08NAT/RO/000500 – LIFEURSUS –
Best practices and demonstrative actions for conservation of Ursus arctos species in Eastern Carpathians Romania

DURATION: Start: 15/01/10 - End: 20/12/13

PROJECT'S IMPLEMENTORS:

Coordinating Beneficiary: LEPA Vrancea

Associated Beneficiary(ies): LEPA Covasna, LEPA Harghita, ACNV, ABC

Financed by:
• European Commission – LIFE+;
• Ministry of Environment and Forests

Project objectives

Some objectives of the project:

• Maintaining the actual conservation status of the brown bear population by using some of the best practices and demonstrative actions as well as promoting these practices and actions at national and European level

• To reduce and prevent conflicts between bears and local people

Brown bear relocation actions:

• tool for damage prevention

• tool for research

• managing trapped bears

Orphan Bear Rehabilitation Center

Association For Conserving Natural Values (ACNV)

EPA Harghita

Large Carnivore Rehabilitation Center and ARMU

EPA Vrancea

EPA Covasna

Harghita Madaras

Cheile Vârghişului Herculian

Tinovul Mohos - Lacul Sf. Ana
Ciomad - Balvanyós

Oituz - Ojdula
Putna - Vrancea

Lacul Negru

Padurea Verdele

Turbaria Ruginosu Zagon Cascada Misina

Legend

Natura 2000 sites for large carnivores

project area

Association for Biodiversity Conservation (A.B.C.)

NATURA 2000
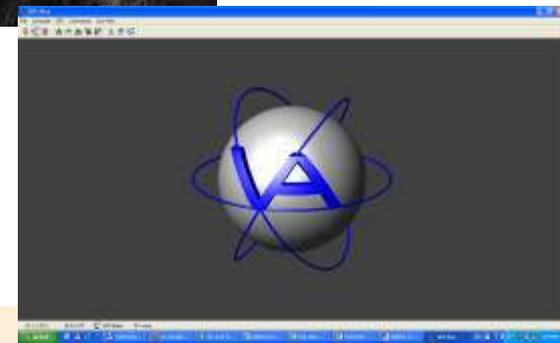
Life

0   12,500 25.000   50.000 Kilometers

Methods and equipment

1.   Methodology for brown bear capture

2.   Equipment

3.   Collars (GPS/GSM)

4.   Software

LARGE CARNIVORES
MONITORING AND REHABILITATION CENTER

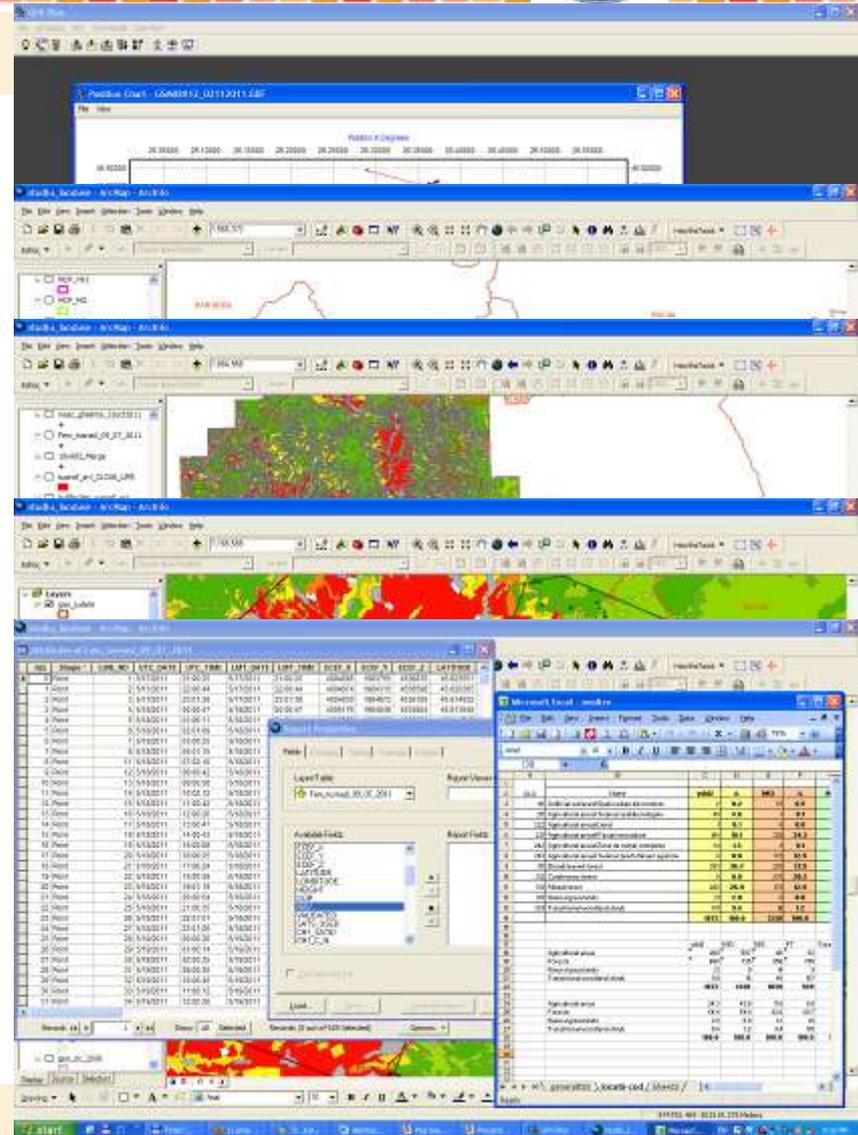ANIMAL RESCUE MOBILE UNIT

A.R.M.U.

Proiector Dan Inject

OPERATING REGULATION

APM Vrancea
Parteneri: APM Covasna, APM Harghita, ACNV,
ACDB

Data analysis

1. Exporting data from sms and email into geographic information

2. Importing data into GIS software and validation

3. Creating layers for each bear

4. Selecting useful raster and layers for land use (Corinne Land Cover 2006)

5. Overlapping the layers

6. Transposing the data into numbers

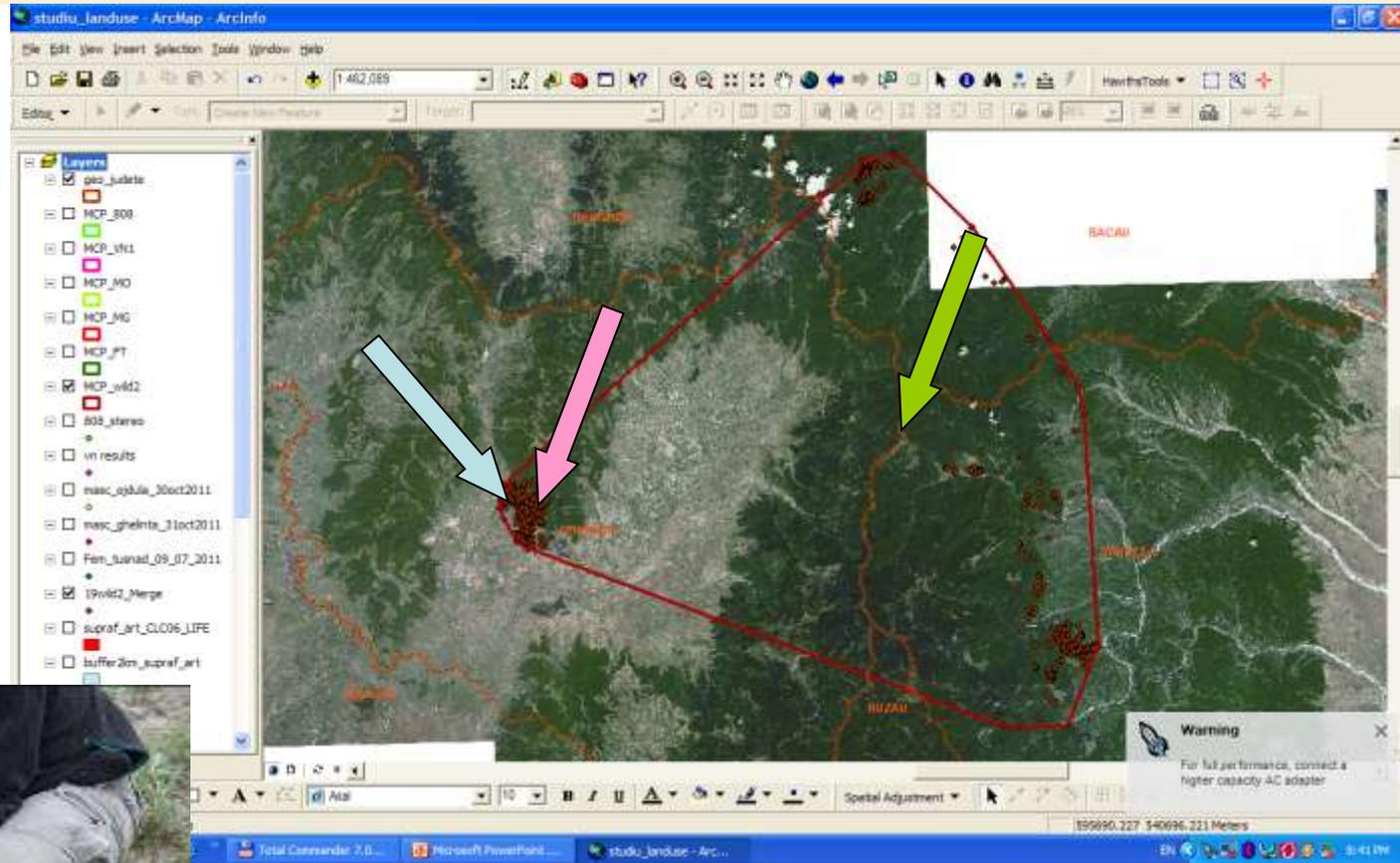7. Descriptive statistics

Male, 2 years old

Human-habituated bear

Date of capture: June 2010
Last location: June 2011
6 locations /day

No. of validated location: 1072

Minimum Convex Polygon: 261.155 ha

Released from snare, with assumption of being human-habituated
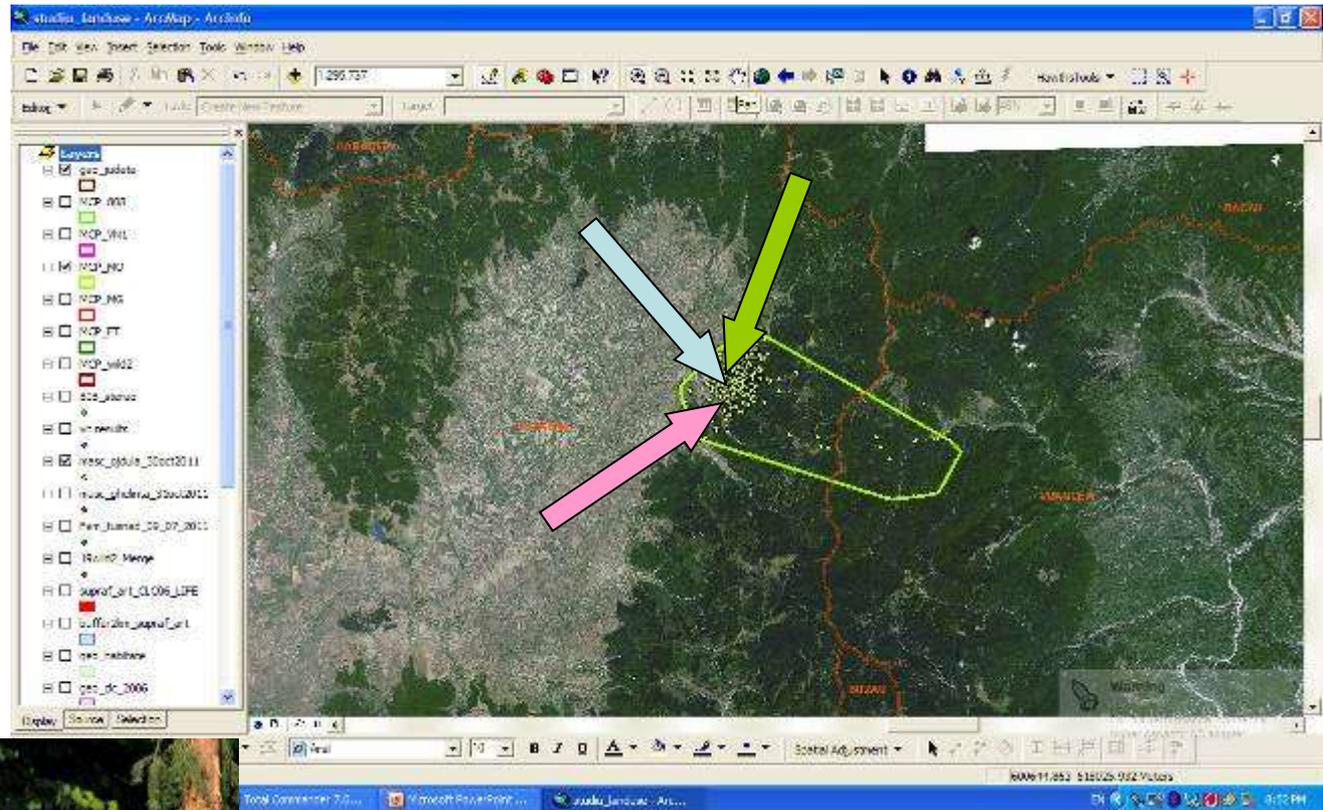
Date of capture: Aug 2011
Last location: Nov 2011
24 locations /day

No. of validated location: 1338

Minimum Convex Polygon: 15.454 ha

Under monitoring
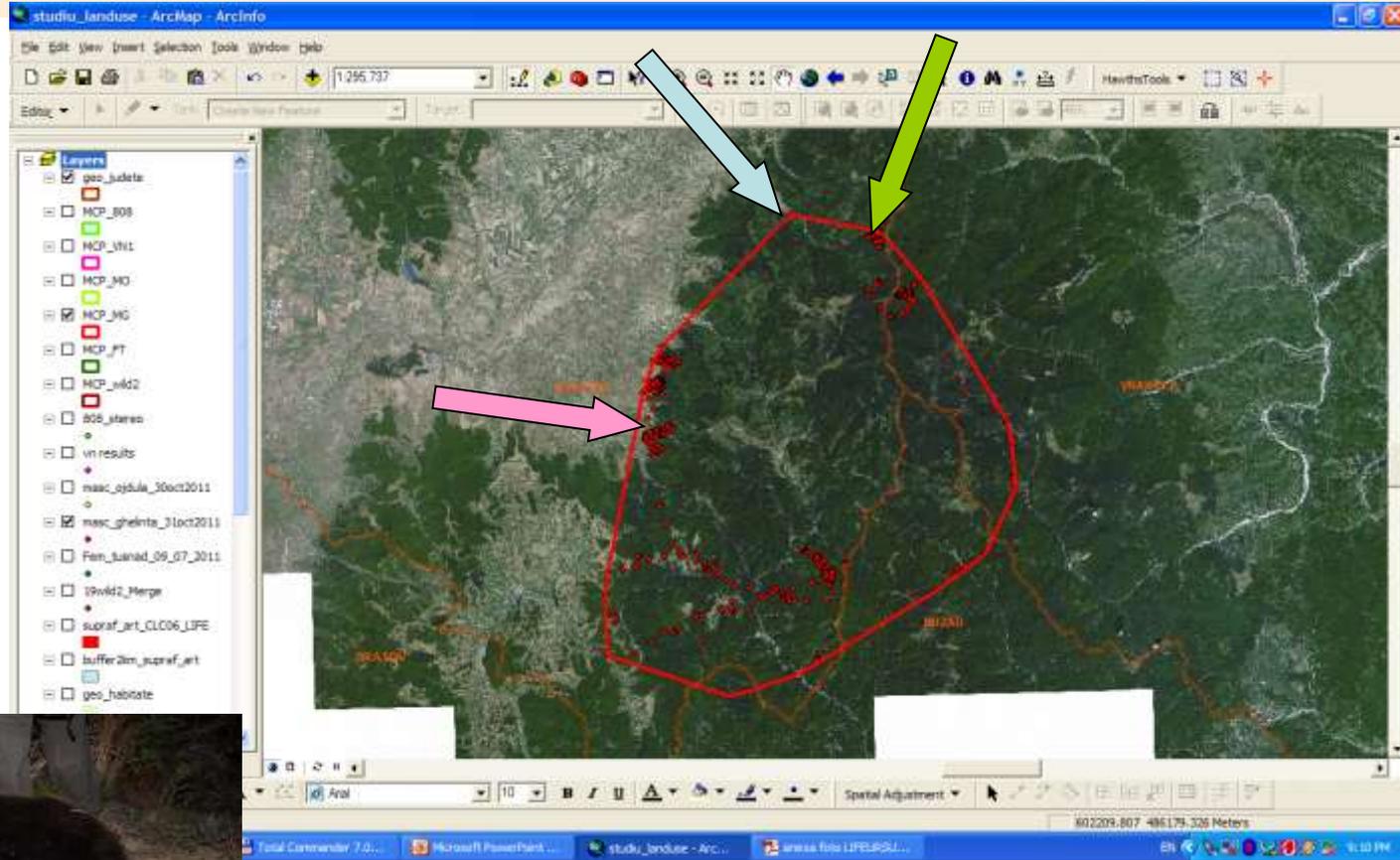
Male, 4 years old

Bear no.3 – MG

Released from snare, with assumption of being human-habituated

Date of capture: September 2011
Last location: November 2011
24 locations /day

No. of validated location: 1039

Minimum Convex Polygon: 70.642 ha

Under monitoring

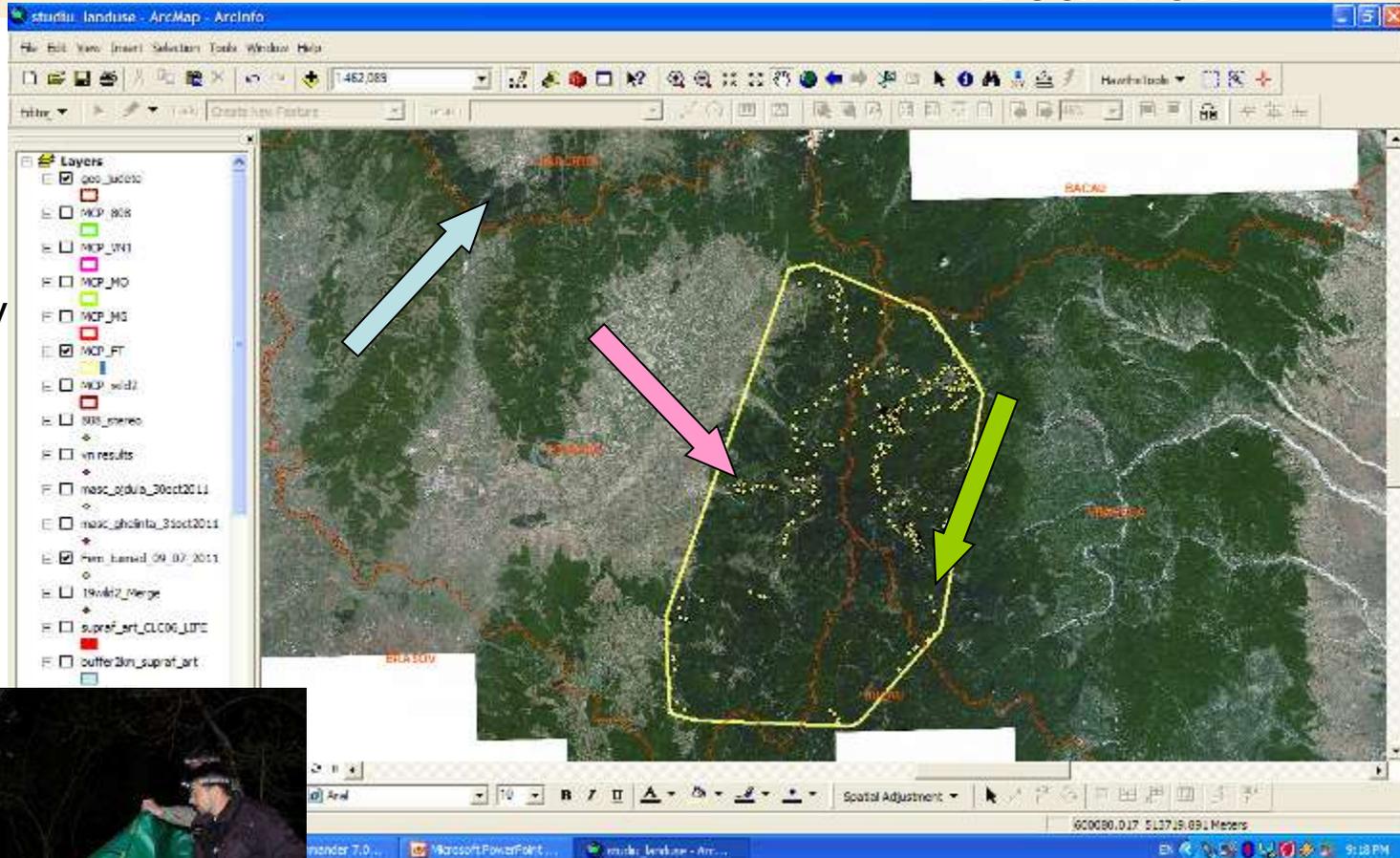Female, 6 years old, with 2 cubs of one year

Food-conditioned bear

Date of capture: May 2011
Last location:
July 2011
24 locations /day
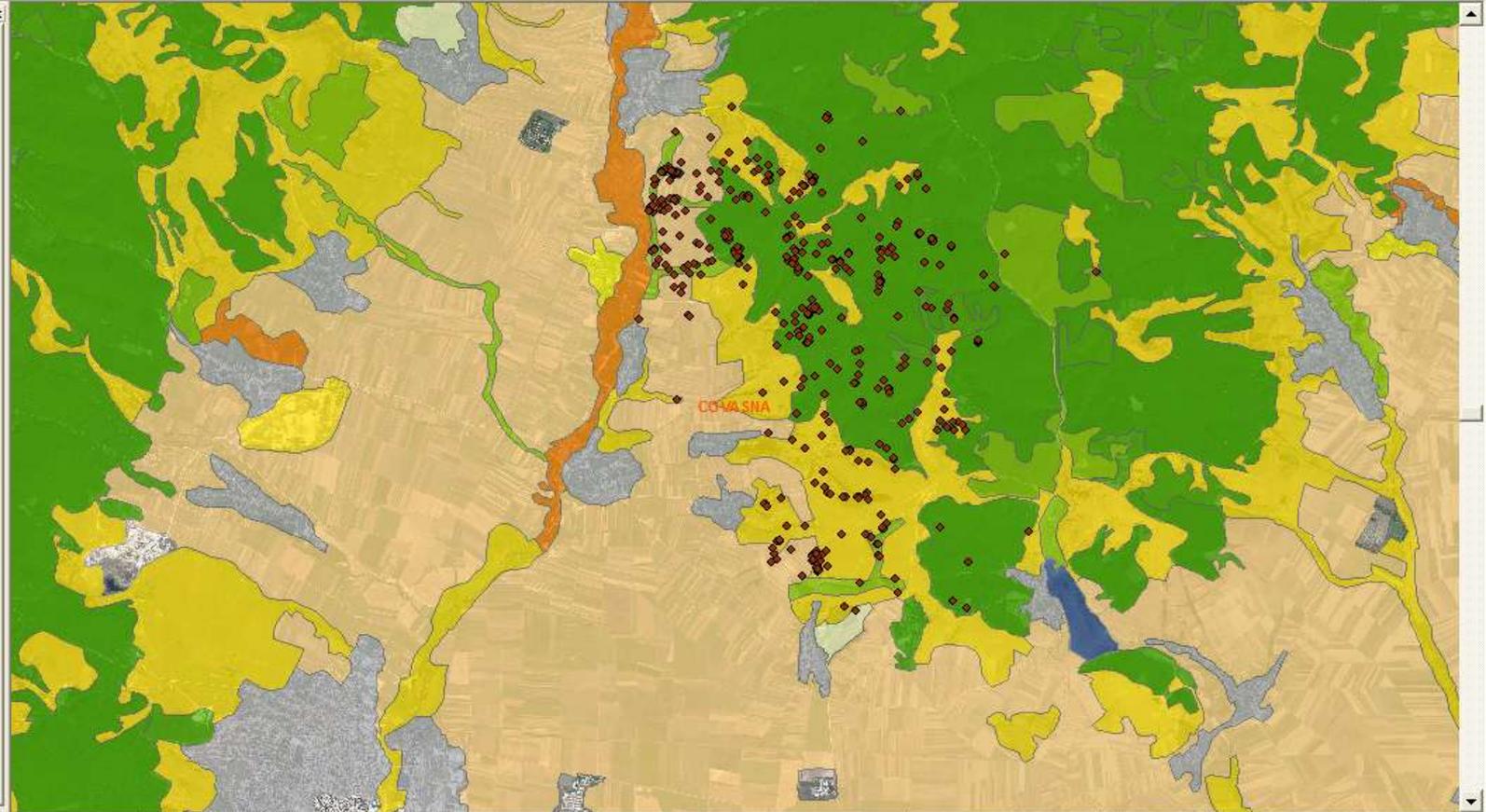
No. of validated location: 929

Minimum Convex Polygon: 130.498 ha

Data transmission stopped.

Partial results

CLC	Name	Brown bear individual									
		wild2	%	MO	%	MG	%	FT	%	Total	%
112	Artificial surfaces/Urban space	2	0.2	87	6.5	47	4.5	1	0.1	137	3.1
211	Agricultural areas/Agricultural fields	49	4.6	1	0.1	0	0.0	0	0.0	50	1.1
222	Agricultural areas/Orchards	1	0.1	0	0.0	0	0.0	0	0.0	1	0.0
231	Agricultural areas/Grass land	194	18.1	325	24.3	57	5.5	52	5.6	628	14.3
242	Agricultural areas/Complex cultures	14	1.3	2	0.1	1	0.1	10	1.1	27	0.6
243	Agricultural areas/Other agricultural fields	0	0.0	172	12.9	16	1.5	0	0.0	188	4.3
311	Broad-leaved forest	393	36.7	293	21.9	183	17.6	122	13.1	991	22.6
312	Coniferous forest	9	0.8	270	20.2	185	17.8	275	29.6	739	16.9
313	Mixed forest	288	26.9	172	12.9	490	47.2	353	38.0	1303	29.8
321	Natural grasslands	21	2.0	0	0.0	14	1.3	9	1.0	44	1.0
324	Transitional woodland-shrub	101	9.4	16	1.2	46	4.4	107	11.5	270	6.2
		1072	100.0	1338	100.0	1039	100.0	929	100.0	4378	100.0

Partial results

Location (%) on land use type

brown bear code
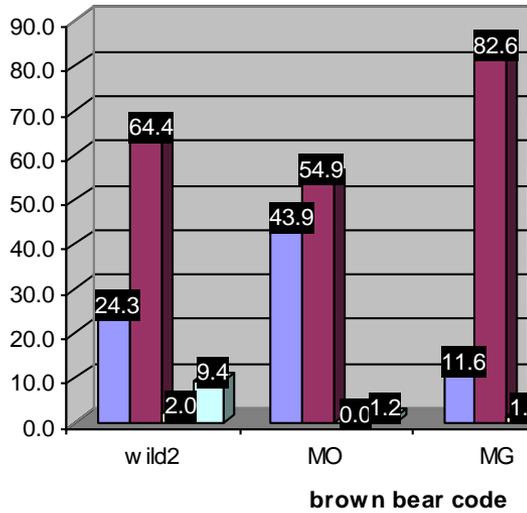
Habitat use

Number of fixes of the rehabilitated and wild captured bears in different habitat classes

Bear acronym	UA 112	AF 211	GL 231	OAF 243	BLF 311	CF 312	MF 313	TW-S 324	Other	Total
AB4331	1	7	108	3	20	253	245	79		716
BAM6210	1	13	25	1	169	201	45	96	5	556
CV6425	2	13	21	8	94	312	313	15	130	541
HR4331			14		12	84	202	22		334
VN5895		2	55	3	50	73	28	40	7	266
VN6424	3	2	16		101	1	530	7	1	661
W6213	2	4	41	1	102	72		406	1	629
W808	5	2	57	1	207	28	219	25	9	553
W073			1		8	2	3			14
W110			2		5	1	7			15
W664		2	5		9		7			23
%	0.3	1.0	8.0	0.4	18	23.8	37.1	16.0	3.6	100

Without rehabilitation period: 23.5% in AF !

Movement of bears near human settlements
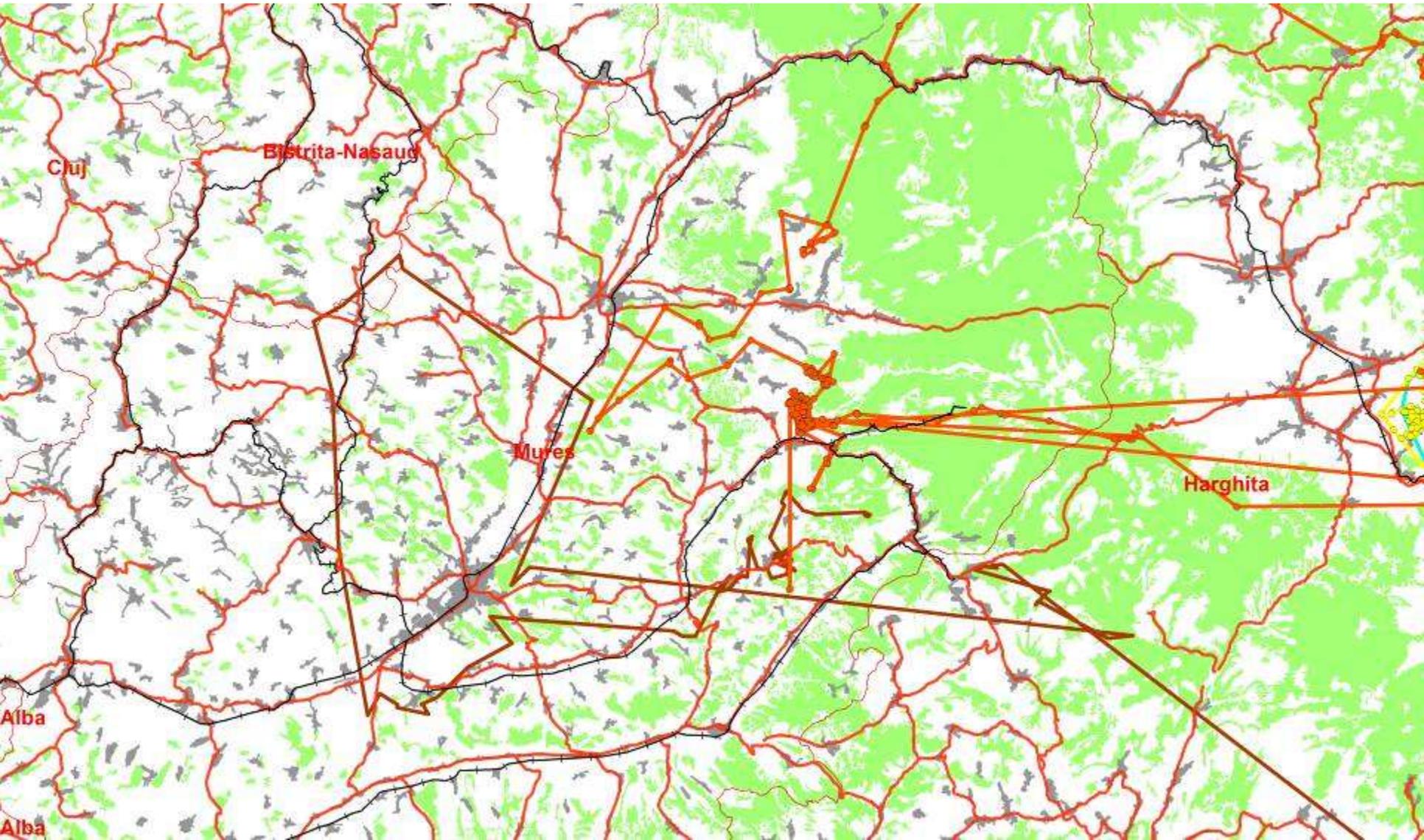
Conclusions

Relocated brown bears, considered as being habituated or food conditioned are using a significant percent (23.5%) of agricultural fields.

For relocation success large wild areas are needed.

Rehabilitation is a solution for sub adult individuals.

The landscape/land use can influence the movements of relocated bears. Area for relocation should be assesses before the action, on relation with food resources and humane settlements distribution in the area.

Bears relocated far from the capture location have a bigger home range and daily movements.

Forest patches are important for bear movement but … in close vicinity of the settlements could be a factor for damage occurrence.

Near human settlements, bears are using the shrub habitats and forested pastures to get close to human origin food resources.

Conclusions

Land use changes and development in the rural areas should **seriously** take into consideration the presence of the brown bears and other large mammals (roe deer, red deer) to avoid future human – bear conflicts.

Maintaining the structure of forests to insure the food resources for wild fauna including bears.

Establishing an efficient waste disposal solution to reduce the risks related to the presence of food conditioned bears in the settlements situated in or near the forests.

Remaining questions:

Is the relocation a good solution? And what are the minimum requirements?

How can we avoid the intrusion of bear into the human settlements?

Can we implement simple rules about land use near bears habitat?

Thank you for the attention!