



7th Carpathian Convention Implementation Committee



S4C Science for the Carpathians

The 4th International Conference

FORUM
CARPATICUM

*Future of the Carpathians:
Smart, Sustainable, Inclusive*

September 28-30, 2016, Bucharest, Romania

www.forumcarpaticum.org



Ministry of National Education and Research of Romania
University of Bucharest - Faculty of Geography and Meteorology
EURAC
ESF Romania
TECHNET
COMPEX

Parliament of Romania - Chamber of Deputies
Romania - Palace of Parliament



Report from 4th International Conference FORUM CARPATICUM

*Future of the Carpathians: Smart, Sustainable,
Inclusive*

28-30 September 2016, Bucharest, Romania

S4C Science for the Carpathians
Elena Matei, Lubos Halada





University of Bucharest
Faculty of Geography,
Romania

Forum Carpathicum 2016 Highlights



“Future of the Carpathians: Smart, Sustainable, Inclusive”

**almost 150 works,
over 500 authors
from 90 institutions
and 16 countries
in 4 plenary sessions,
14 thematic sessions
four workshops,
three days,
Bucharest, Romania Palace of Parliament.**

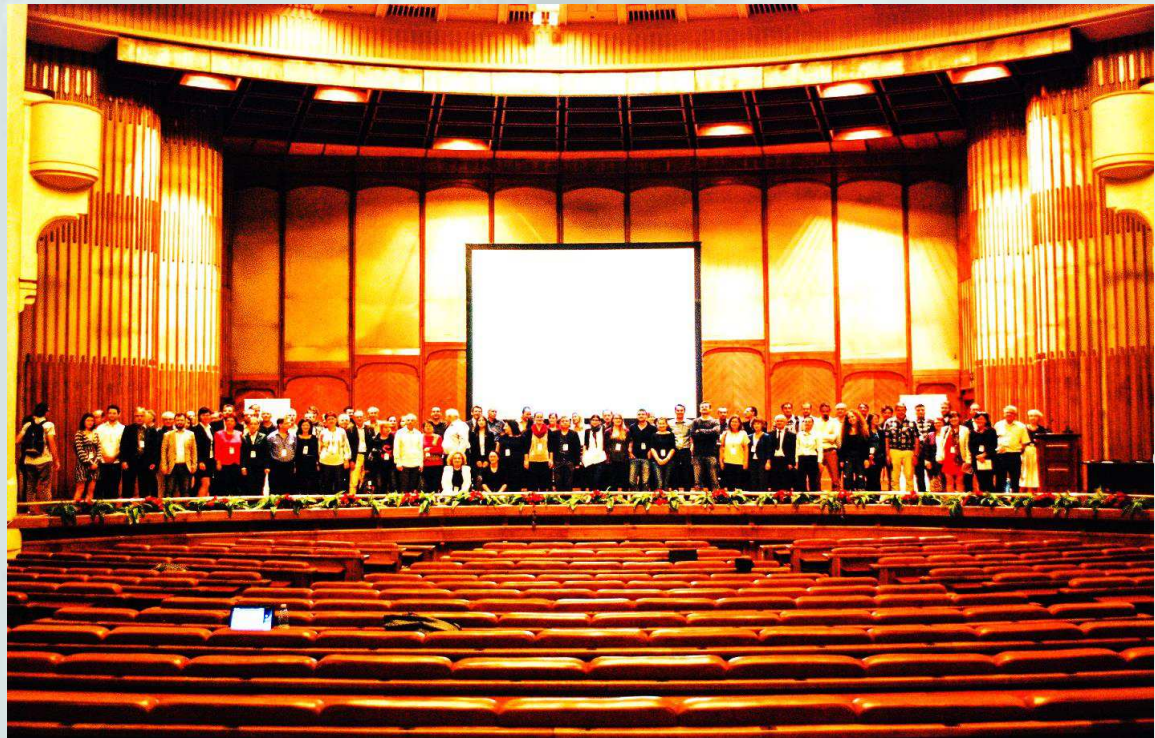
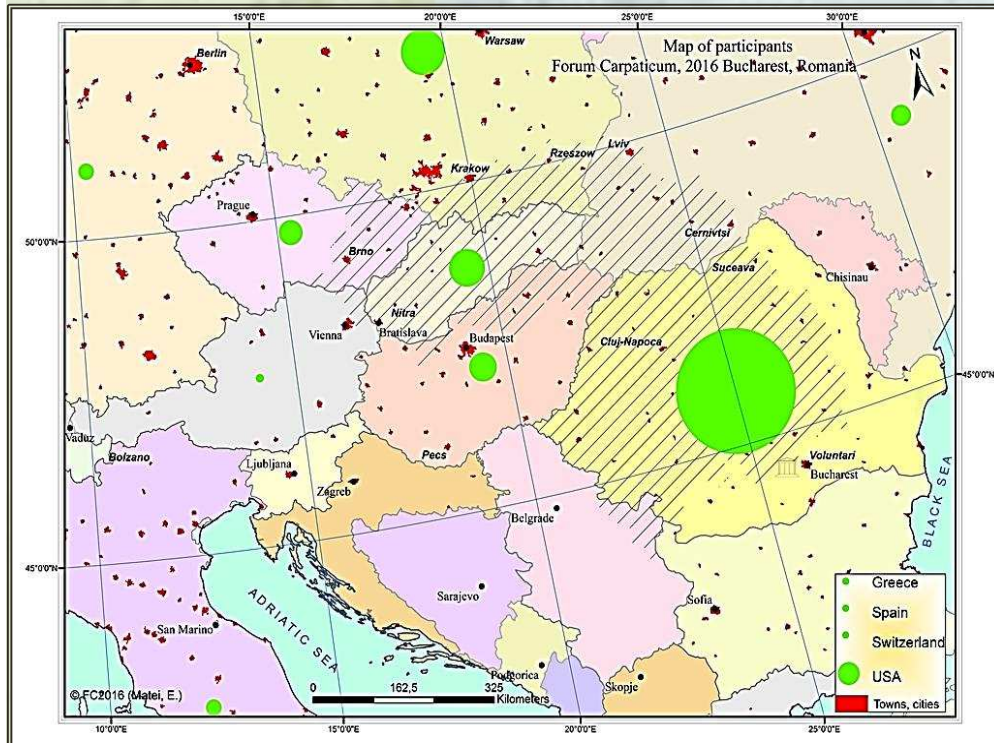


Photo by Bogdan Olariu

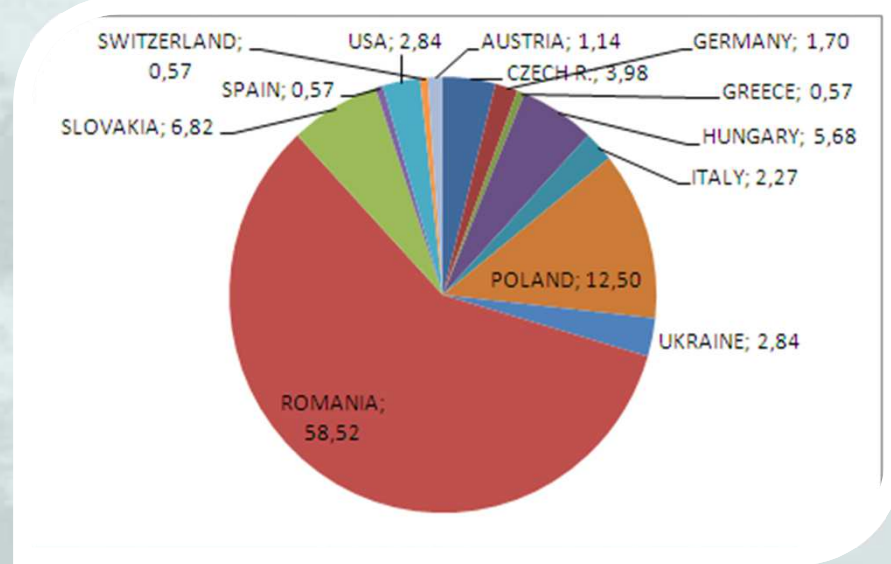


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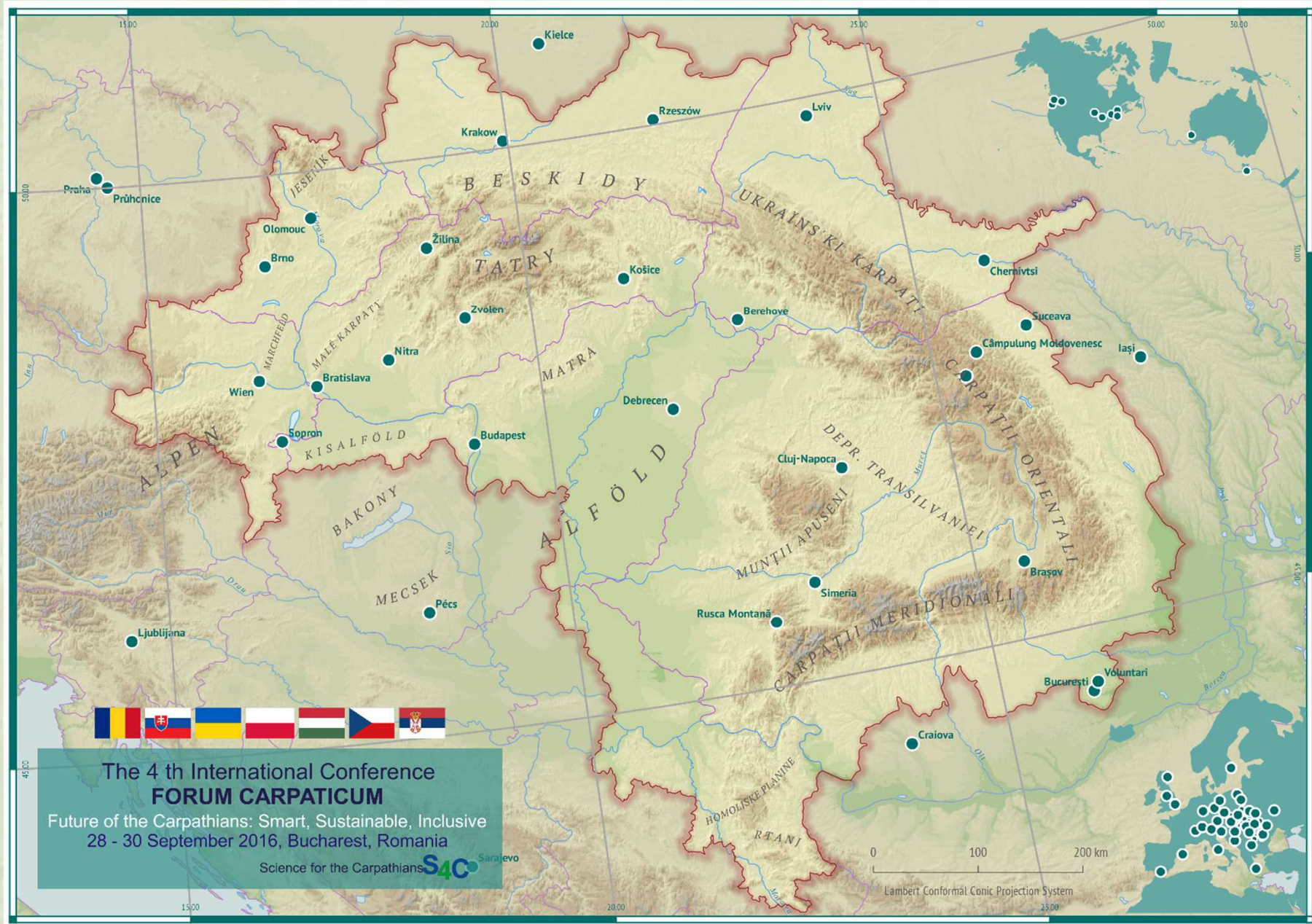


Carpathian Region was the core of scientific interest for almost 200 participants, from senior researchers to PhD. students and students.



*Map of participants at Forum Carpathicum 2016.
Author: Matei, E., University of Bucharest, 2016*

The rate of participants to Forum Carpathicum 2016 (%). Matei, E., University of Bucharest, 2016



Map of the authors' institutions subscribed to Forum Carpaticum 2016. Authors: B. Mihai, C. Buterez, M. Rujoiu-Mare, B. Olariu. Data collected by Vijulie, I. University of Bucharest, 2016



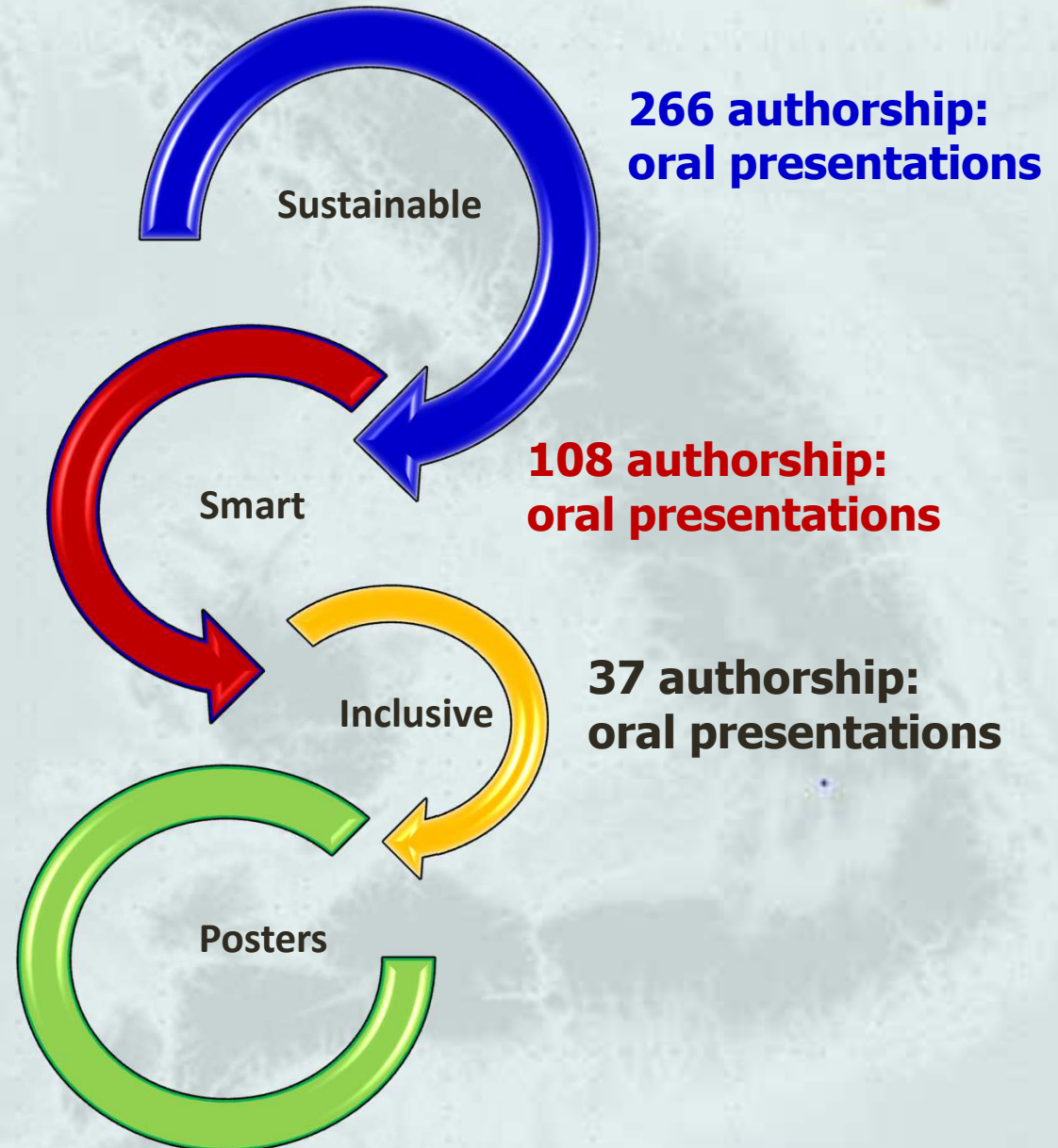
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Forum Carpathicum 2016 Highlights



Of three pillars,
"Sustainable Carpathians"
was a key theme covering
more than half of
presentations, followed by
"Smart" and then
"Inclusive".

154
authorship





Sustainable Carpathians- FORESTS

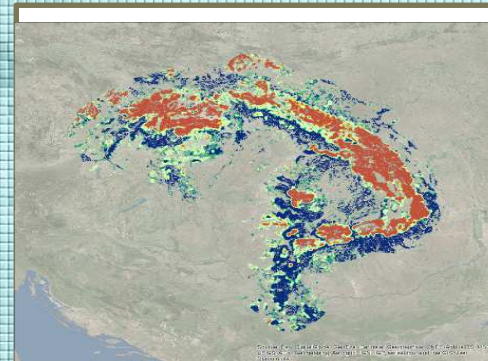
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FC 2016 could be considered a conference dedicated to the forests with a broad range of topics.

METHODS

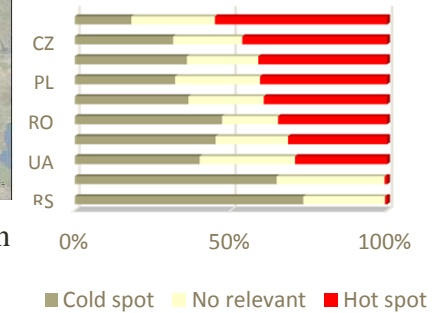
STRUCTURAL AND SPATIAL DYNAMICS

FACTORS



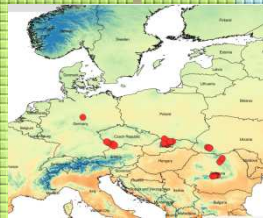
Hot spot analysis
Cold Spot - 99% Confidence
Cold Spot - 95% Confidence
Cold Spot - 90% Confidence
Not Significant
Hot Spot - 90% Confidence
Hot Spot - 95% Confidence
Hot Spot - 99% Confidence

Hot spot detection

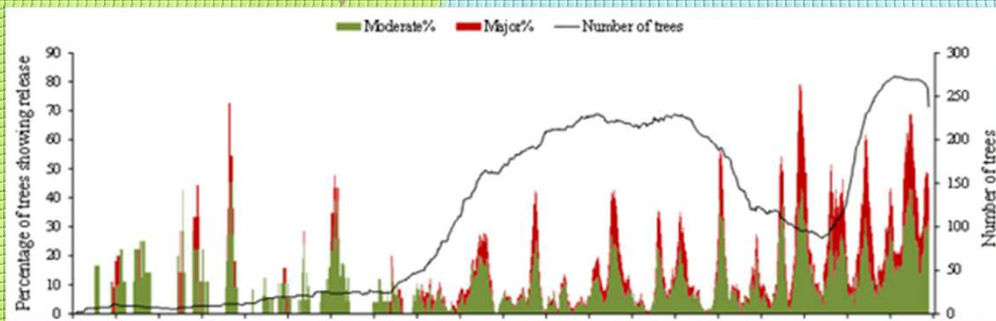


High presence of hot spots in virgin forest areas
Naturalness ≠ Old-growth

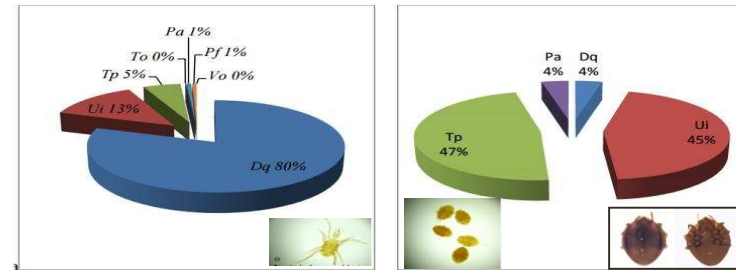
Emanuele Mancosu, Dania Abdul Malak, Antonio Sanchez (University of Malaga), Silvia Giuliatti, Annemarie Bastrup-Birk (EEA)



Trotsiuk et al.,
Czech R.



Disturbance history – derived from millennia Cembra pine data.
Popa Ionel, Nechita Constantin, Sidor Cristian, National Research and Development Institute for Silviculture, Romania



The abundance of mites species on the body of the bark beetles
Dq- Dendrolaelaps quadrisetus; Ui-Uroobovella ipidis; Tp-Trichouropoda polytricha;
To- Trichouropoda orzaghi; Pa-Pleurometocelaeno austriaca; Pf- Proctolaelaps fiseri;
Vo- Vulgarogamasus oudemansi.

IPYS TYPOGRAPHUS

PITYOGENES CHALCOGRAPHUS

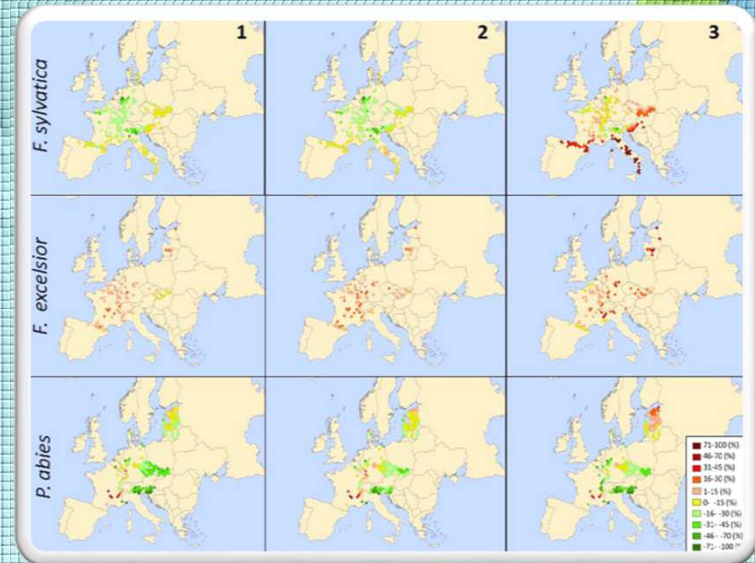
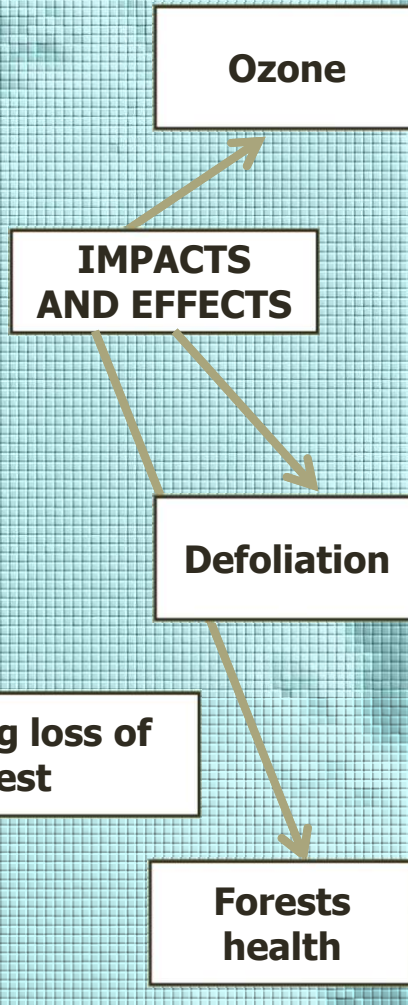
Manu Minodora, Poliță Daniel and Onete Marilena, Romanian Academy, Institute of Biology, Bucharest, Caraș-Severin Forest Office, Rusca Montană Forest District, Caraș Severin county, Oțelul Roșu, Romania



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FORESTS (Chemical environment Research Agenda)

-Environmental pollution on forest trees;
-Hydrological mapping of forest vegetation;
-Climate change-related changes in grassland or forest communities etc.



Alessandra de Marco, Ionel Popa, Marcello Vitale, Alessandro Anav, Diana Silaghi, Stefan Leca, Augusto Screpanti, Ovidiu Badea, Elena Paoletti, Ozone exposure affects tree defoliation in a continental climate

Forests health related to potential impacts of toxic air pollutants is of great concern in Europe, including the Carpathian countries. Monitoring of forest health in Romania started in the 1990s and has been carried out on permanent evaluation plots. Among the studies variables on those plots is foliar nutrient content, an important characteristic needed for understanding general condition of individual trees and forest stands.

Based on report made by :
Andrzej Bytnerowicz, Ovidiu Badea and Ecaterina Apostol



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Climate (Climate change)

Climate change highlighted specific topics and interdisciplinary usefulness

**METHODS
IMPACTS**

RECOMMENDATIONS

INTERDISCIPLINARY

- **Implement the Action plan for adaptation to CC.**
- **Use results of recent projects (CARPIVIA, CarpatClim, FORESEE) for planning of adaptation and mitigation actions on all levels.**
- **Improve involvement of local and regional stakeholders to CC adaptation and resilience building.**
- **Continue building an early-warning systems for extreme climatic events,.** (Bytnerowicz, USA)

Regional patterns of change in temperature extremes. Bîrsan et al. (Romania), *Heat and cold waves in the Carpathian Mountains region (1961-2010)*;

Bojariu et al., Romania, *Snow-related impact in the Carpathians under climate change conditions*;

Hájková et al, Czech R., *Drought impact on vegetation in 2015 in the Czech Republic*;

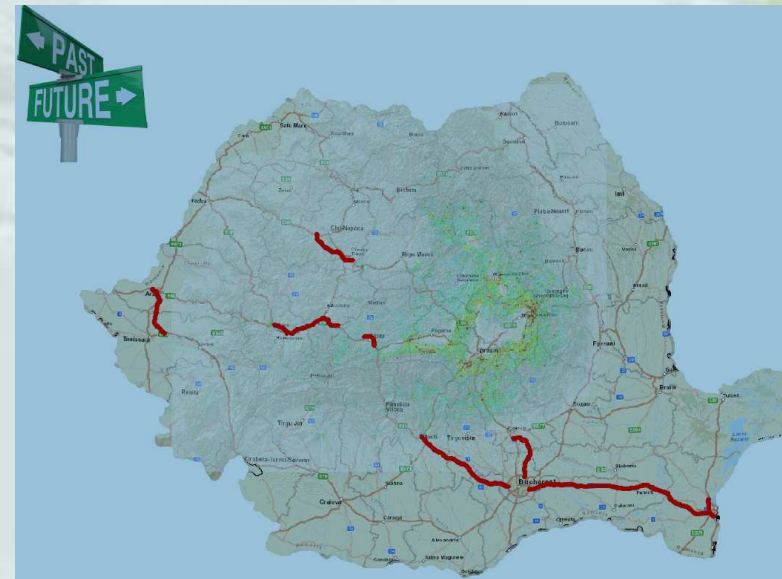
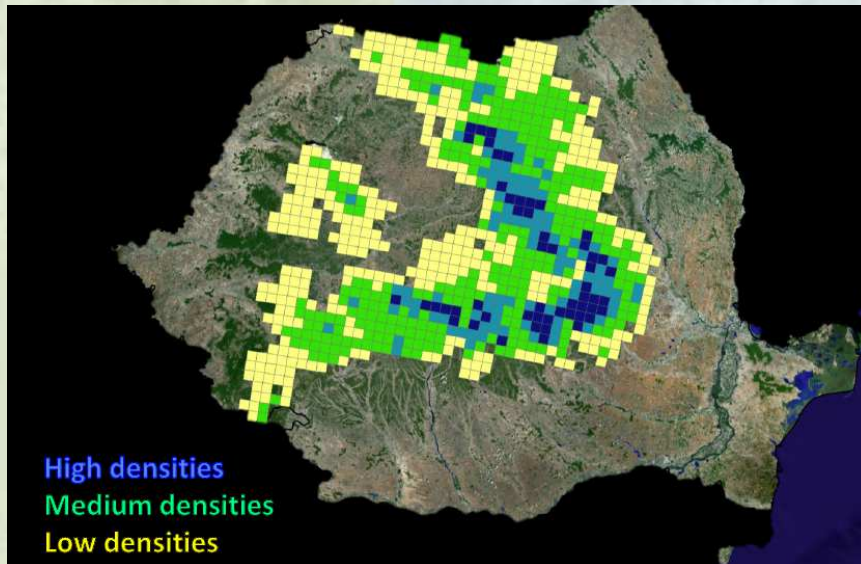
Bytnerowicz, USA, *Climate change and air pollution effects on the Carpathian Mountains with an emphasis on forests ecosystems and their services.*

Enhance resilience of natural regeneration and plantations to climate change, particularly on precipitations, (Daia et al.), Romania.

Mihai et al., (Romania), identified the adaptative potential of Norway spruce and European silver fir in case of centers with high diversity. Cudlin et al., *Prediction of land use and biodiversity development in highland landscape of the most western part of Carpathians (Hostýnské vrchy, Czech Republic) under climate change .*

Based on report of Joanna Zawiejska and Flaviu Popescu, and A. Bytnerowicz work.

Large carnivores – brown bear in Romania



Romanian brown bear - one of the **highest genetic diversity** in the world

Maps of gene flow can be used for identifying potential ecological corridors

The retention and protection of unfragmented, large natural landscapes should be ensured - areas interconnected with corridors and active management of corridors and protected areas

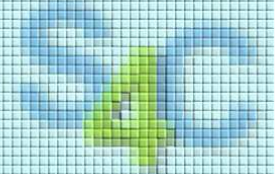
Conservation strategies that **maintain or restore connectivity** between brown bear habitat patches are critical in the face of future landscape change

Planning that integrates connectivity should be a legal requirement



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Forum Carpathicum 2016 Highlights



Workshops

Smart Marketing for Carpathians tourist destination.

Needs: to implement best lesson learned, cooperation among stakeholders, NGOs, and universities for local and nature benefits.

Education for Sustainability in the Carpathians.

- Useful workshop, proposal to organize educational sections in all Forum Carpathicum in the future
- Focus more on interdisciplinary discussion is needed
- Co-operation with **UNECE – ESD focal points** is strongly suggested during the preparation of next Forum Carpathicum - they co-ordinate education for sustainable education activities in all Carpathian countries



Photo by Elena Matei



Photo by Elena Matei

Based on reports of
Staciou, F. and Varga A.



The conference was followed by field trips to Bucegi Natural Park = protected area management and monitoring program for forests in a changing climate;
Fagaras Mountains, current geomorphological processes and the impact of human activities on the alpine environment.



Photo by Bogdan Mihai



Photo by Mitrica Stefania

Forum Carpaticum 2016, held in Bucharest, was a good and interesting scientific meeting, thanks to contribution to all the participants and organizers.

Next Forum Carpaticum, 2018 will be organized by Hungary under the chairing of Dr. Katalin Masza, elected as deputy of Executive board for the next two years.



Photo by Bogdan Olariu

Acknowledgements

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Emanuele Mancosu
Minodora Manu
Katalin Mazsa
Bogdan Mihai
Ionel Popa
Falviu Popescu
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Bartłomiej Wyżga
Liliana Zaharia
Joanna Zawiejska**

The event was coordinated by:

**Faculty of Geography, University of Bucharest
National Institute for Forest Research and
Management, Romania**

Numerous and important partners joined the event:

- **The Commission of Education, Science, Youth and Sports of the Chamber of Deputies, the Romanian Parliament,**
- **Carpathian Convention secretariat - UNEP Vienna,**
- **"Stefan cel Mare", Suceava University,**
- **Romanian Institute of Geography of the Romanian Academy etc.**

News from Science for Carpathians

- We have a new chair – Elena Matei (Romania)
- ...and also new vice-chair – Katalin Mázsza (Hungary)
- Changes in Scientific Steering Committee under preparation
- The research strategy update is continuing
- Possible side event at CC COP5 meeting 2017 in Hungary
- Forum Carpaticum 2018 - Hungary

More info: <http://carpathianscience.org/>



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