Importance of ecosystem services for rural inhabitants in a changing social-ecological system

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Introductory words

- Traditional rural landscapes are still common in Romania.
- They evolved as tightly coupled social-ecological systems.
  - Knowledge to assess the quality of ES.
  - Skills to manage ecosystems in a way to keep ES.
  - Available tools: animals, man power.
Social-ecological packages
Many protected species and habitats (Halada et al., 2011, Biodiversity and Conservation) and ecosystem services (Bugalho et al. 2011, Frontiers in Ecology and the Environment) depend on the continuation of low intensity practices.
Corncrake (*Crex crex*)
Yellow bellied toad (Bombina variegata)
Major social-cultural, economic and ecological changes occurring.

- The *nature* of connections between people and their environment is changing.
- Huge pressure on the ecological systems and on the cultural heritage.
- Change is imminent.
Traditional landscape
Management induced change (reconstruction)

‘One thing seem to be permanent in the Saxon traditional landscapes. That is, the change.’ (Kuno Martini, a Saxon friend).

Change in landscape=>reduction of the mosaic

Time

18 century
- buffalo was introduced
- sheep appeared (?)

Middle 19 century
- 209 cattle / village
- 129 buffalo / village
- 510 sheep / village

1989 revolution
- drop of cattle
- sharp drop of buffalo

Present
- few cattle
- virtually no buffalo
- sharp increase in sheep
Traditional landscape

2004

2010
Traditional landscape

Seeing these fast changes as ecologist is very hard to not be nostalgic for the past.
Cultural heritage between persistence and change
Public debate and conference organized by the Mihai Eminescu Trust
Questions:

- How people rate the importance of ES? Insights into potential dependencies.
- How people perceive past and current changes and their expectations / aspirations regarding the future.
Study region: the Saxon region of Transylvania

Questionnaire surveys for rating ecosystem services
-98 persons from 30 villages

Semi-structured interviews and workshops
-50 persons from 5 villages
-5 workshops
Methods

ES valuation
(Not important, somewhat important, important, very important)
  - Clean water
  - Crops, fruits, vegetables
  - Cows
  - Sheep
  - Timber
  - Firewood
  - Honey
  - Fish
  - Medical plants
  - Hunting
  - Flood control
  - Healthy soil
  - Pest control and pollination
  - Sense of place
  - Spiritual value
  - Attracting tourists
  - Relaxation, recreation

Semi structured interviews

Broad themes:
(i) The past: “Tell me about the major events and changes of any kind, happening in the past that affected this community, including your own life”.
(ii) The present: “Tell me about the major events and changes of any kind, happening in the last five years and affected this community, including your life”.
(iii) The future: “How do you see the future of this village? What types of changes will occur?”
(iv) Main actors in the village: “Tell me about important local actors – e.g. persons, organizations, ethnic groups, parties – in this village, and why they are important?”
Results

Importance of ecosystem services

- Water
- Healthy soil
- Crops
- Firewood
- Pest control and pollination
- Sense of place
- Flood control
- Relaxation and recreation
- Cows
- Medical plants
- Honey
- Sheep
- Spiritual value
- Attracting tourists
- Timber
- Fish
- Hunting

Answers in %

- Red: very important
- Orange: important
- Yellow: somewhat important
- White: not important
Results

The number of times each symbol belonging to social, institutional, economic and environment was identified in the 50 narratives about the past, present and future of the communities.
Table 1. Major local actors according to the interviewees. Numbers show how many interviewees referred to a particular actor type in a given village – for example, two interviewees in Apold mentioned a lack of major local actors.

<table>
<thead>
<tr>
<th></th>
<th>Mălăncrav</th>
<th>Apold</th>
<th>Viscri</th>
<th>Alma Vii</th>
<th>Drăușeni</th>
</tr>
</thead>
<tbody>
<tr>
<td>No major actors</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Ethnic groups</td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>(Saxons)</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NGOs</td>
<td>8</td>
<td>2</td>
<td>8</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>Individuals</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Foreign organizations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Churches or priests</td>
<td>5</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmer associations</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Volunteer groups</td>
<td>4</td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>None mentioned</td>
<td></td>
<td>2</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Year</td>
<td>Event Description</td>
<td>Impact</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------------</td>
<td>--------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Influential individual X joins the local council</td>
<td>Projects to maintain cultural heritage ↓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Collective farms close</td>
<td>Land abandonment ↓ Job opportunities ↓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Bus service stopped</td>
<td>Access of pupils to secondary school ↓ Access to nearby towns ↓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1990</td>
<td>Belgian humanitarian help starting</td>
<td>Twinning with Belgian village External assistance ↑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1994</td>
<td>State owned animal farm closed</td>
<td>Land abandonment ↑ Job opportunities ↓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1999</td>
<td>Sock Association established</td>
<td>Number of women selling socks ↑ Income for women ↑ Accessiblity of pupils to High School ↑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>Mihai Eminescu Trust starting building renovations</td>
<td>Job opportunities from renovations ↑ Number of houses renovated ↑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2003</td>
<td>Prince Charles visiting</td>
<td>Image of village for outsiders ↑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>Wave of tourism</td>
<td>Income from tourism ↑ Number of guest houses in the village ↑</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>Sewage system introduces</td>
<td>Quality of life due to bathrooms ↑</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Timeline of change expressed by a woman group in Apold

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
<th>Changes associated with the event (if used: $\uparrow$ = increase; $\downarrow$ = decrease)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Change 1</td>
</tr>
<tr>
<td>1989</td>
<td>Revolution</td>
<td>Number of Saxons $\downarrow$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of Romanians $\downarrow$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Number of Rroma $\uparrow$</td>
</tr>
<tr>
<td>1990</td>
<td>Closing agricultural cooperative</td>
<td>Profitability of agriculture and the number of cows $\downarrow$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Jobs in the village $\downarrow$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Violence, threats, thefts $\uparrow$, power of local authority, priest and teachers $\downarrow$</td>
</tr>
<tr>
<td>1991</td>
<td>State farm closed</td>
<td>Jobs in the village $\downarrow$</td>
</tr>
<tr>
<td>1992</td>
<td>Agricultural association started</td>
<td>Mechanized agriculture $\uparrow$</td>
</tr>
<tr>
<td>2008</td>
<td>Running water introduced</td>
<td>(doesn’t work because ‘everybody wants to be cheap’)</td>
</tr>
<tr>
<td>2008</td>
<td>Association of families</td>
<td>(doesn’t work because ‘everybody wants to be cheap’)</td>
</tr>
</tbody>
</table>

Young people often stay and drink (do nothing)
**Social capital**

- Even if closely situated, villages differ from each other.

<table>
<thead>
<tr>
<th>Economy</th>
<th>Community</th>
<th>Ethnic fragmentation</th>
<th>Intensity of local initiatives</th>
<th>Corruption of governance</th>
<th>Local actor influence</th>
<th>Optimism regarding the future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alma Vii</td>
<td>Medium</td>
<td>Medium</td>
<td>Lowest</td>
<td>Highest</td>
<td>Medium</td>
<td>Medium</td>
</tr>
<tr>
<td>Apold</td>
<td>Lowest</td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
</tr>
<tr>
<td>Drauseni</td>
<td>Medium</td>
<td>Medium</td>
<td>Lowest</td>
<td>Lowest</td>
<td>Medium</td>
<td>Lowest</td>
</tr>
<tr>
<td>Mâlâncrav</td>
<td>Highest</td>
<td>Highest</td>
<td>Highest</td>
<td>Highest</td>
<td>Lowest</td>
<td>Highest</td>
</tr>
<tr>
<td>Viscri</td>
<td>Highest</td>
<td>Highest</td>
<td>Lowest</td>
<td>Highest</td>
<td>Lowest</td>
<td>Highest</td>
</tr>
</tbody>
</table>
Conclusions

- People rate a number of ecosystem services as very important.
- But they are primarily concerned about socio-economic issues affecting their lives, ES seem to be taken as granted.
- People are tightly bound to the natural environment in the physical sense, but not in their minds.
  - Warning signal for a de-coupling social-ecological system.
A major challenge for cultural landscapes such as those in Central Romania is to find new, meaningful ways to keep the social and ecological systems connected. Otherwise there is a risk that (short-term) socio-economic concerns may undermine important ecosystem services.
THANKS!

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• To the Alexander von Humboldt Foundation and the German Ministry for Education and Research, for funding
• To all collaborators and project partners, especially the Mihai Eminescu Trust