Resource assessment methods for sustainable collection of Arnica flowers in the Apuseni mountains in Romania

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Acknowledgements

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This presentation

- Short project overview
- Resource assessment methods used
- Cost structure
- Discussions
Conservation of Eastern European Medicinal Plants: 
*Arnica montana* in Romania

**Project background**

- Arnica is threatened in many European countries
- RO is one of main source countries for Arnica
- Case study: low intensity management of mountain meadows and sustainable livelihoods and ethical business
- Basic studies and data available at project start (Michler, 2005)
Proiect Apuseni

The methods for inventorying and monitoring were developed in Proiect Apuseni, coordinated by Faculty of Forest Sciences, University of Freiburg, Germany

Conservation of Eastern European Medicinal Plants: *Arnica montana* in Romania

### Project Partners

- WWF-UK (project lead)
- WWF-DCP (project implementation)
- USAMV (technical expertise, implementation)
- Community of Gârda de Sus (project implementation)
- Apuseni Natural Park (habitat conservation)

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Conservation of Eastern European Medicinal Plants: 
Arnica montana in Romania

Project location

TRANSILVANIA

Apuseni Mountains

Cluj Napoca

Câmpeni
Conservation of Eastern European Medicinal Plants: *Arnica montana* in Romania

Project location

Gârda de Sus in West of Apuseni Mountains
Current Situation

- Poor, remote rural area close to protected area
- Traditional, low-intensity meadow management
- Sustainability of collection and quality of material questionable
- Before project start the sale was depending on arrival of intermediate trader(s)
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**Main Project Components**

1. Research on Arnica and ecosystem management
2. Supply chain and trade analysis
3. Socio-economic research
4. Training and capacity building
5. Value-added products: local drying of Arnica, organic certification, ISSC MAP pilot implementation
6. Development of local Arnica social enterprise
Resource assessment methods

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Resource assessment methods

Inventorying

- Three mapping seasons 2002 (Proiect Apuseni), 2004, 2005; 32 walking days
- Method: Surveying open land using maps and satellite image (only in Proiect Apuseni) Scale 1:5000
- 8742 ha - the total area of Gîrda de Sus
- 597 polygons identified (213 in Proiect Apuseni); total Arnica habitat surface 547 ha (287 ha in Proiect Apuseni)
- digitizing the polygons (213 in Proiect Apuseni)
Resource assessment methods

Monitoring

• Monitoring before harvesting or mowing season in 2004 – 2006
• Counting the number of stems in random transects of 30 x 2 m
• Counting the number of flower heads per stem
• Counting flowering and vegetative individuals per sq m
Resource assessment methods

Biodiversity research

- Studying the botanical diversity 2004 – 2006
  - one sq meter frame method
- Research on phytophagus complex on *Arnica montana*
  - catching the insects on a 10 x 10 m quadrant for 50 random polygons in 2005 and for 56 in 2006
Resource assessment methods

Soil Study

• 46 soil profiles were placed within 43 random plots

Meadows Management Interview

• Interviews with 90 farmers
• Structure of the interview
Cost structure

Overall Costs (alternative 1)

• Inventorying – 6352.5 US $, 72 person – days of work
• Monitoring – 7170.5 US $, 480 person – days of work
• Biodiversity research – 6623.7 US $, 243 person – days of work
• Soil Study – 928 US $, 46 person – days of work
• Meadows management interview – 805.7 US $, 48 person – days of work
Cost structure

Overall Costs (alternative 2)

- Materials – 5465.6 US $
- Salaries – 11656.1 US $
- Accommodation and meals – 3035.1 US $
- Transport – 1762.6 US $
Discussions

Recurring Costs

- Salaries for field work – average 13.9 US$ / per person / per day
- Accommodation and meals – average 11.5 US$ / per person / per day
- Transport – 17.28 US$ for 100 km off road
Discussion

Recommendations for Reducing the Costs

• Increasing the involvement of local community members in field work
• The number of transects per hectar could be reduced if lower precision of monitoring is acceptable
• Agreements with universities for involving students in field activities
Discussion

Questions for Discussion

• Are there tools / methods to support a local company which will not benefit from external project funds to implement this method?

• How can the costs of inventorying, resource assessment and monitoring be reduced without deterioration of the assessment results?
THANK YOU!