Assessing the Sustainable Yield in Medicinal and Aromatic Plant Collection

Isle of Vilm, Germany, 14 - 17 September 2006

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

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Michler B. (2005) Arznei- und Gewürzpflanzen. In:

RUSDEA, E., REIF, A., POVARA, I. & KONOLD, W. (Hrsg) (2005): Perspektiven für eine traditionelle Kulturlandschaft in Osteuropa. Ergebnisse eines inter- und transdisziplinären, partizipativen Forschungsprojektes in Osteuropa. Culterra 34, Freiburg, 401 S. + Anhang

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

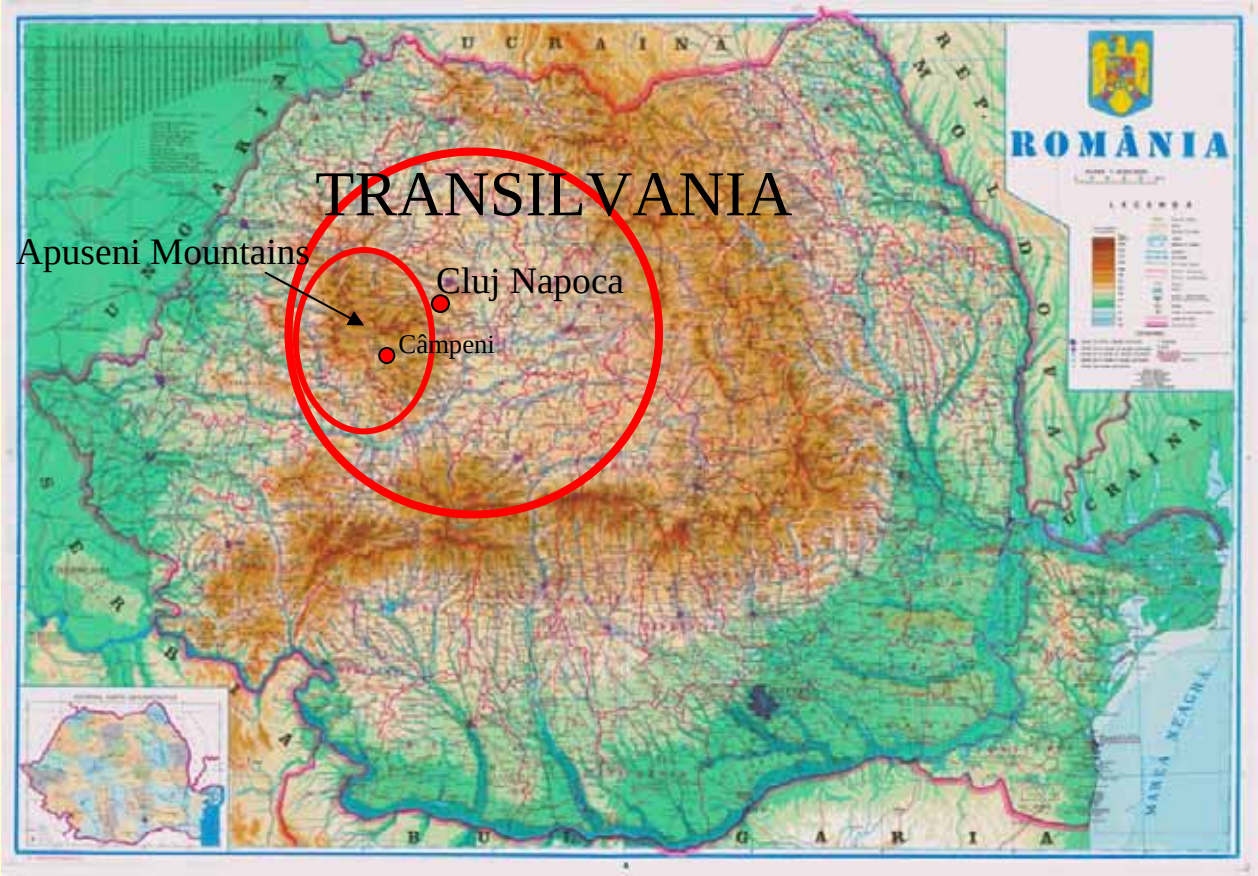
Project Partners

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

The project is funded by: The DARWIN Initiative (UK)

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

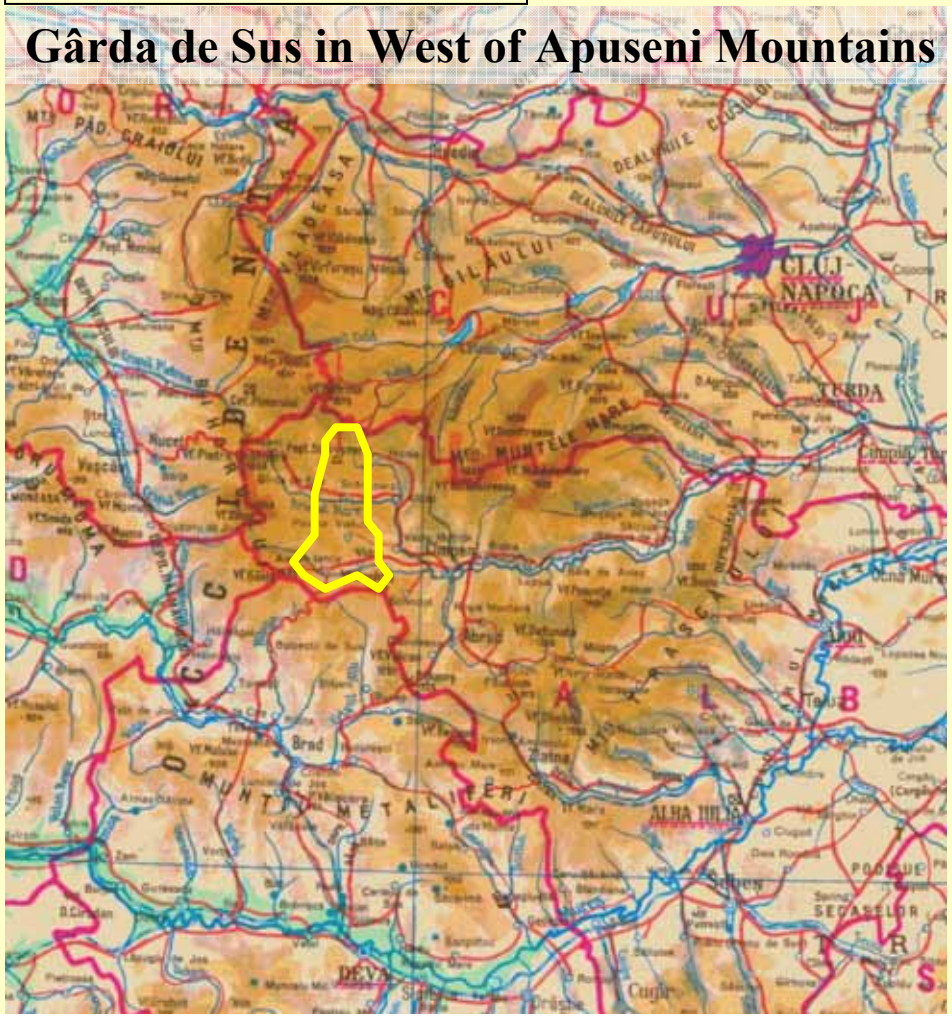
Project location



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

Project location

Gârda de Sus in West of Apuseni Mountains



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

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)

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

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

Inventorying

Monitoring

Biodiversity reseach

Soil survey

Meadows management interviews

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
  - 53 polygons in 2004, 50 random polygons in 2005 and 67 in 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, ressource assessment and monitoring be reduced without deterioration of the assessment results?

THANK YOU!