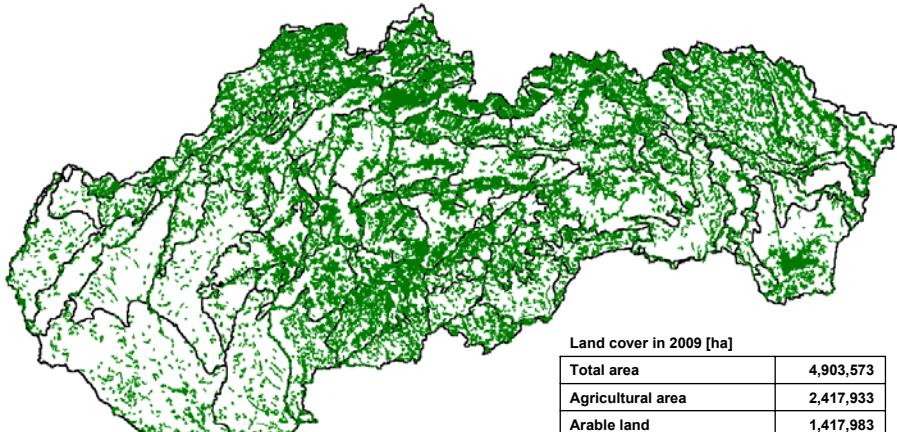


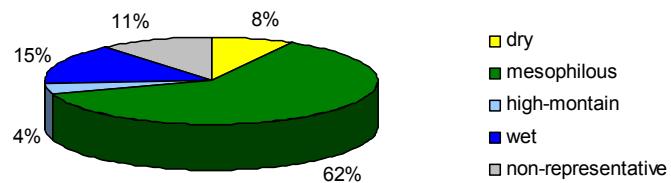
Restoration of semi-natural grasslands in Slovakia

Miriam Kizeková, Norbert Britaňák, Jozef Čunderlík, Ľubomír Hanzes, Jana Martincová & Štefan Pollák, Plant Production Research Centre, Slovakia





General habitat types according to area

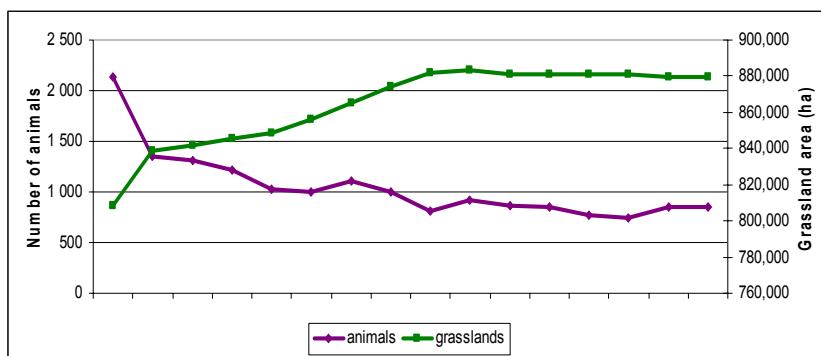


Threats

- agricultural intensification
- cessation management
- afforestation
- building activity
(town expansion,motorways,
sport centres)
- tourism
- property relationships



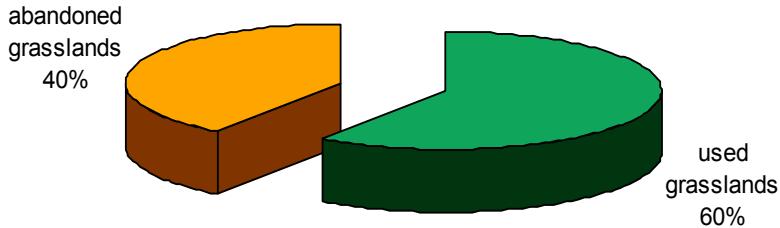
EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Share of used and abandoned permanent grasslands

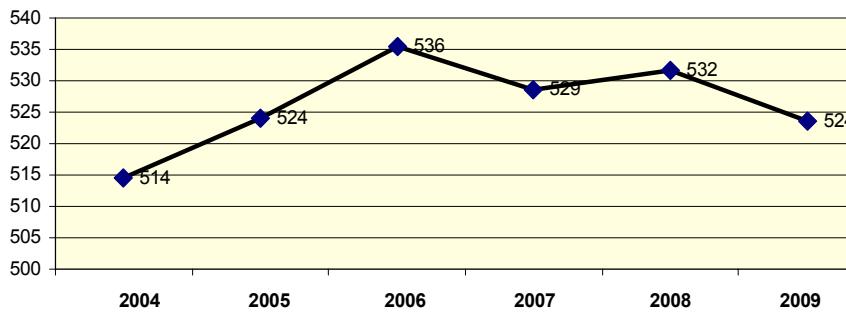


EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



CAP and semi-natural grasslands

Area of used grasslands in Slovakia in 2004 - 2009 (thous. ha)



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Restoration management of semi-natural grasslands

- shrubs and tree removing
- restoration mowing
- mulching
- grazing



Goals

maintenance and improvement of biodiversity of grassland habitats
sustainable management

Different approach
flora and fauna diversity

Management model for grassland habitats
supported by EEA Financial Mechanism
Norwegian Financial Mechanism and
the State budget of the Slovak Republic
Partners: DAPHNE – Centre for Applied Ecology
Institute of Botany, Slovak Academy of Sciences
Duration: August 2009 - March 2011
Outputs: management models for 20 types of grassland habitats
Models exact determination of habitats
ecological requirements
management recommendations



Complex research

botanical analyses
soil properties under semi-natural grassland
assessment of forage quality



Biodiversity protection and management of the permanent grasslands in the Protected Landscape Area Poľana Biosphere Reserve



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



GMARI

effect of grassland management on habitat biodiversity and soil properties has been investigated currently

restoration of abandoned and ruderal grasslands

assessment of **vitality of semi-natural** and **natural grassland** habitats managed according to agri-environmental measures

National Programme on Plant Genetic Resources Conservation and Utilization in Slovak Republic collection of genetic resources of grasses, legumes and wild herbs from semi-natural grasslands



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Management and Restoration of Meadows in Morava River Floodplain

Project coordinator: DAPHNE – Centre for Applied Ecology

Duration: 1994 – 1999

Aim: to develop the methodology for large scale floodplain meadow restoration

Two techniques of meadow restoration

- turf transplantation
- sowing of native seeds

Output: Morava River Floodplain Meadows –
Importance, Restoration and Management”,
no guideline has not been published



State Nature Conservancy of the Slovak Republic

- application of plant material (hay from the grassland habitats)
on ski slopes in the Low Tatras National Park



SALVERE

SALVERE in Slovakia

3 demonstration trials

2 plant communities

Arrhenatherion,
Mesobromion

2 different receptor sites

arable land

degraded grasslands

Festuca arundinacea Schreb.



Demostration trial Liptovská Teplička

Natural landscape unit	Teplická kotlina valley
Location	Kráľovohoľské Tatry Mts.
Degraded land	degraded grassland (<i>Festuca arundinacea</i>)
Soil preparation	harrowing (July 2009)



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Demostration trial Liptovská Teplička



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Demostration trial Tajov

Natural landscape unit

Buffer zone of the Low Tatras National Park

Location

Starohorské vrchy Mts.

Plant communities

★ *Arrhenatherion*

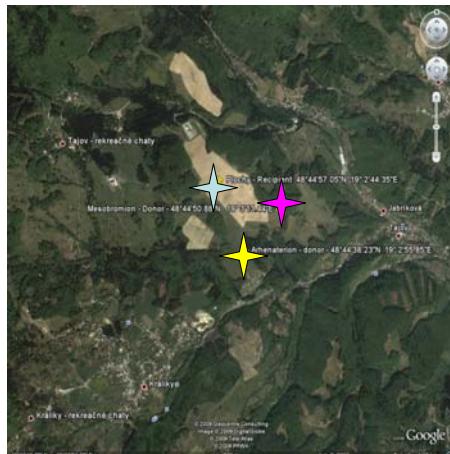
★ *Mesobromion*

Degraded land

★ arable land

Soil preparation

harrowing (July 2009)



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



SALVERE

Demostration trial Tajov

Donor sites

Arrhenatherion
46 plant species



Mesobromion
52 plant species



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



Arrhenatherion

SALVERE

Target species

Grasses	Herbs	Herbs
<i>Agrostis capillaris</i>	<i>Achillea millefolium</i>	<i>Plantago lanceolata</i>
<i>Arrhenatherum elatius</i>	<i>Alchemilla vulgaris</i>	<i>Rhinanthus minor</i>
<i>Avenula pubescens</i>	<i>Campanula patula</i>	<i>Salvia pratensis</i>
<i>Briza media</i>	<i>Cerastium holostoides</i>	<i>Taraxacum sp.</i>
<i>Bromus erectus</i>	<i>Cruciata glabra</i>	<i>Trifolium pratense</i>
<i>Festuca pratensis</i>	<i>Dianthus carthusianorum</i>	<i>Tragopogon orientalis</i>
<i>Festuca rubra</i>	<i>Leucanthemum vulgare</i>	
<i>Dactylis glomerata</i>	<i>Leontodon hispidus</i>	Grasses 10
<i>Poa pratensis</i>	<i>Lotus corniculatus</i>	Herbs 16
<i>Trisetum flavescens</i>	<i>Knautia kitaibelii</i>	Total 26



Mesobromion

SALVERE

Target species

Trávy	Bylinky	Bylinky
<i>Agrostis capillaris</i>	<i>Campanula patula</i>	<i>Sangvisorba minor</i>
<i>Anthoxanthum odoratum</i>	<i>Dianthus carthusianorum</i>	<i>Silene vulgaris</i>
<i>Arrhenatherum elatius</i>	<i>Knautia kitaibelii</i>	<i>Taraxacum sp.</i>
<i>Bromus erectus</i>	<i>Leucanthemum vulgare</i>	<i>Tragopogon orientalis</i>
<i>Briza media</i>	<i>Lotus corniculatus</i>	<i>Trifolium pratense</i>
<i>Dactylis glomerata</i>	<i>Medicago falcata</i>	<i>Viola hirta</i>
<i>Festuca rubra</i>	<i>Pimpinella saxifraga</i>	
<i>Festuca rupicola</i>	<i>Primula veris</i>	Grasses 10
<i>Poa pratensis</i>	<i>Salvia pratensis</i>	Herbs 16
<i>Trisetum flavescens</i>	<i>Salvia verticillata</i>	Total 26





SALVERE



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND



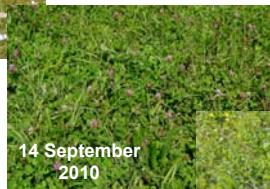
4 May 2010

Arrhenatherion
Tajov

SALVERE



22 June 2010



14 September
2010

Avenula pubescens
Arrhenatherum elatius
Festuca rubra
Trisetum flavescens
Trifolium pratense
Rhinanthus minor



EUROPEAN UNION
EUROPEAN REGIONAL
DEVELOPMENT FUND





4 May 2010



22 June 2010



14 September
2010

Bromus erectus
Festuca rupicola
Trisetum flavescens
Briza media



12 May 2011



Thank you for attention