



Conservation of biodiversity and genetic resources in semi-natural grasslands in Norway

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Values in permanent grasslands

1. Genetic resources of forage plants, grasses/legumes
 - Considered to be of significant value in Norway
 - Adapted to local climate and growing conditions
 - Diversity in altitudes, longitude, coastal/continental gradients, soil, cultivation methods, climate etc.

2. Other
 - Habitats for red listed plants (quite many species)
 - “Flowering meadows”
 - Medicinal and aromatic plants



<http://www.tilbakeblikk.no/> (also in english)



1992:
Residues of a spring cowhouse
in front of another intact
cowhouse, in a partly grazed
field.



2002:
Residues of a spring cowhouse
can still be seen between fast
growing trees/bushes. The other
house is still intact but hidden by
bigger trees.

Threats against habitats, plants and PGR

1. Abandoned farms and reforestation
2. New methods for harvesting
3. Increased use of chemical fertilisers
4. Grazing of outlying fields terminated





Project: “Our semi-natural heritage”

1. Established in 2006
2. Partners:
 - Norwegian Institute for Agricultural and Environmental Research
 - Norwegian Genetic Resources Centre
 - Agricultural and environmental government administration in two counties
3. Aims:
 - Secure continued cultivation of valuable fields through traditional farming and governmental support
 - Define secured fields as in situ gene banks for forage grass and legume plants

A number of such fields will cover the diversity of genetic resources in the country





Knowledge about values / lack of action

1. Valuable landscapes has been investigated and registered since the 1970-ties
 - a) Category A: National value
 - b) Category B: Regional value
 - c) Category C: Local value
- Farmers, agricultural and environmental authorities have been encouraged to maintain fields by traditional methods, but the results have been disappointing.
2. The unfavourable trends have continued, due to:
 - The overall trends in abandoning farms, overgrown fields and reforestation
 - Lack of information and communication between players
 - Fear of “doing something wrong”
 - Lack of knowledge about maintaining traditional grasslands.



The “Our Semi-natural Heritage”-concept

- Including:
 - a) Gathering information about registered A- and B-fields
 - b) Ensuring that all involved and potential parties are informed
 - c) Making management plans for keeping biodiversity and genetic resources
 - d) Facilitate the use of governmental grants for further farming of the fields
 - e) Inform owners and farmers and ensuring that maintenance schemes are understood and feasible
 - f) Establishing a system where local authorities monitor and control

Criteria for choosing fields and farms

1. Unploughed fields during 20-30 years
2. Continuous farming through some decades, no major gaps
3. A certain spreading of fields, to cover regions and climates
4. Owner and farmer must want to participate and contribute



Change in landscape over only 10 years



Management plans

- a) Description of the field / locality
- b) Documentation of traditional cultivation methods
- c) Characterisation of the meadow, especially the flora:
Forage plants, dominant species, characterising species, rare / red listed plants, other socio-economic plants
- d) Maintenance / cultivation of the field: how, when etc.
Mowing/grazing, equipment, number of grazing animals etc.
- e) Documentation needed for achieving governmental subsidies
- f) Monitoring program
Ensuring continuous farming
Investigate the actual effect of actions over time



Action plan for hay meadows

- a) Launched in 2009 by the Norwegian Directorate for Nature Management
- b) Cooperation between environmental authorities and the agricultural sector (authorities, advisory service and farmers)
- c) Naturbase / number of registered and assessed fields;
 - in 1980-ties: 1275 localities / 5081 ha,
 - in 2010 probably decreased about 60-90%
- d) Aim to establish active farming in all assessed fields in 2015
- e) Recognizes the role of these fields as landscape elements and habitats, and in situ gene banks or meadow plants.



From Bykle kyrkjebygd:

The redlisted orchid *Dactylorhiza sambucina* is dependant on such habitats.



Management plan in progress



**One example:
Lille Skoenga, Eidså i Songdalen, Vest-Agder**



One of the best localities for *Arnica montana* i southern part of Norway



Mountain tobacco, *Arnica montana*



- Redlisted: VU – vulnerable
- Several insects depends on *Arnica* habitats
- Symbiosis with mykorrhiza
- Defined as an important MAP-species
- Classified herbal drug: "arnikatinktur"



History of registration / investigation



11. 2007
Biodiversitetssenteret
No. 2 (19), 115-2007
Skjervevassplan
Hauane og Lille skoenga, Eidså
Songdalen kommune, Vest-Agder

Blomstertid
19.05.2007

- Known by botanists since 1962
- New registration in 2003
- Evaluated as an "A-locality (national value)"
- The owner and the municipality were informed by our project in 2006
- Management plan made in 2007

<http://www.bioforsk.no/>



The history of farming decides the management plan



- Extensive hay mowing until the 1940-ties, late pasture by cattle
- Milking cattle pastures from 1940-ties to 1984
- Horse pasture from 1984 to 1989
- Suckler cows pasture from 1990 until today
- Low level artificial fertiliser used since the 1960-ties

- The management plan suggests:
 - continued cow pasture,
 - no fertilisers
- The species diversity will be monitored and the management methods will be adjusted if needed regarding conservation of species

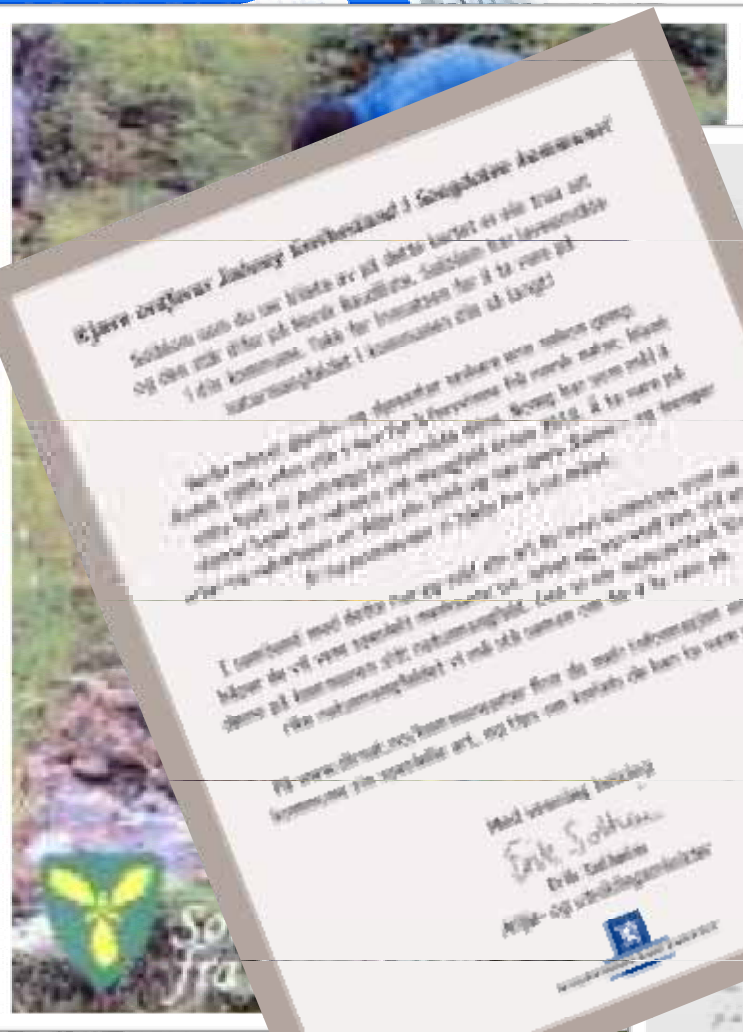
A nice story



Agricultural consultant Rune H. Westhassel and land owner Markus Haugland


- The first application for grants for maintenance of biodiversity in this municipality
- The first case of biodiversity for the person in charge of agriculture in the municipality
- The farmer gets grants from regional environmental schemes.

Lille Skoenga becomes famous



Et jærre træfælleskab i Songdalen Kommune
 Songdalen som du kan høre af på dette kort er på sin tur et
 og det er et af de mange steder, som Songdalen Kommune
 i det kommunale. Tak for hjælpen for at få mere af
 naturmangfoldigheden i kommunen og så langt

Med venlig hilsning
 Erik Søthaus
 Erik Søthaus
 Miljø- og udstillingsskoleleder


 Songdalen Kommune



Songdalen 11-11-11
 Højskolekomiteen Lille Skoenga
 Songdalen 11-11-11 er en af de mange steder, som Songdalen Kommune
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SONSDALEN KOMMUNE
 Ordfører

Lille Skoenga Landskap



All involved parties do know each other

- Landowner Markus Haugland
- Owner of the animals Oddvar Eidså
- Agricultural advisor Rune H. Westhassel
- The municipality by maire Johnny Greibesland
- Regional governmental office / agriculture and environment
- Authorities handling grants and subsidies
- And the glue: The "Our Our semi-natural heritage" project





... Status Lille Skoenga

- The field Lille Skoenga is considered as an in situ gene bank for Mountain tobacco, (and other species)
- The management plan ensures that the populations survives and develop.





Results:

Management plans according to our concept are developed and implemented in about 40 localities in four counties

More counties are considering to introduce the methods

Eduaction of planning expertice ongoing

The concept of *in situ* gene banks in semi-natural localities is accepted

Collection of seeds from the fields for conservation in NordGen will hopefully take place in 2011



Experiences:

- Maintenance and conservation of semi-natural fields forms an arena for cooperation between environmental and agricultural sectors
- Conservation of biodiversity is easier adopted by farmers when it also includes genetic resources for agriculture.
- Semi-natural fields will constitute a national gene bank for *in situ* conservation of genetic resources, especially for forage crops
- Management plans made for one kind of field/habitat will serve as model plans for similar fields