

10th European Heathland Workshop

24th June - 1st July 2007, Central to Northern Norway



Workshop, Excursion and Symposium Guides

Inger E. Måren and Liv S. Nilsen (editors)

Department of Natural History & Department of Biology
University of Bergen

Måren, I.E. & Nilsen L.S. (eds.) 2007. Threats, management and conservation of heathlands. Workshop, Excursion & Symposium Guides. 10th European Heathland Workshop, Norway, 24th of June – 1st of July 2007. Department of Natural History, Bergen Museum, & Department of Biology, University of Bergen Norway.

Bergen, June 2007

Authors:

Inger E. Måren and Liv S. Nilsen

Design:

Beate Helle

Front page pictures:

Giske L. Andersen & Inger E. Måren

Printed copies:

150

© 2007 Department of Natural History at Bergen Museum & Department of Biology, University of Bergen, Norway

Department of Natural History, Bergen Museum, University of Bergen

Pb 7800

N-5020 Bergen, Norway

E-mail: post@bm.uib.no

Website: <http://www.heathlands2007.uib.no/>

Tel: +47 55 58 33 45

Fax: +47 55 58 96 67

Sponsored by:

University of Bergen

Torstein Erbos gavefond

Directorate for Nature Management

Norwegian Institute for Agricultural and Environmental Research

Bergen myrdyrkningsforenings fond

Olaf Grolle and Miranda Bødtkers legat

The municipality of Vikna

The municipality of Bjugn

North-Trøndelag County Council

County Governor in North-Trøndelag, Agricultural Department

Innovation Norway

Felles legat til fremme av biologisk forskning, UoB

The Norwegian State Forest Corporation

The Norwegian Biodiversity Information Centre

The Norwegian University of Science and Technology (NTNU)

NGU

10th European
Heathland
Workshop,
24th of June – 1st of July 2007.
Northern Norway,

Threats, management and conservation of heathlands.

Workshop, Excursion & Symposium Guides

Edited by Inger E. Måren and Liv S. Nilsen

Contents

Foreword	5
Preface by Inger E. Måren	6
Workshop Programme	7
Symposium Programme	9
Participants at the 10th European Heathland Workshop	12
Map	14
Workshop Guide - The coastal region of Central to Northern Norway	15
1. Natural and Cultural History - U. Tveraabak	18
2. Characterisation and Regional Variation - A. Moen	26
3. Vegetation & Flora - L.S. Nilsen	32
4. Management and Products - P.E. Kaland & M. Kvamme	38
5. The Norwegian Feral sheep - L.G. Velle & S. Øpstad	44
6. Threats - P.A. Aarrestad	48
Excursion Guide	53
1. Tarva. L.S. Nilsen & L.G. Velle	57
2. Vikna. L.S. Nilsen & A. Moen	61
3. Vega. L. Hatten & A. Østrbrøt	67
4. Lofoten. U. Tverraabak, P.E. Kaland & I. E. Måren	74
Symposium Guide – Abstracts of talks and posters	80
1. General session	82
2. Threats	94
3. Management	116
4. Conservation	138

Foreword

This report is a permanent record of the **10th European Heathland Workshop**, organized from Trondheim to Lofoten, 24th of June – 1st of July, 2007 as part of the European Heathland Network. This excursion and symposium were organized by the national Norwegian Heathland Network – LYNET.

As editors and members of the organizing committee we want to thank the local staff all along our windy route from Trondheim to Lofoten for help and enthusiasm in making this trip possible. We thank Unn Tveraabak, Asbjørn Moen, Mons Kvamme, Peter Emil Kaland, Liv Guri Velle, Samson Øpstad and Per Arild Aarrestad for contributions to the workshop guide, Lise Hatten, Akse Østebrøt, Peter Emil Kaland and Unn Tveraabak for contributions to the excursion guide, and to all the participants contributing with interesting abstracts for talks and posters.

The Editors

Preface

Nature is, and has always been, in constant change. But today, we contribute stronger to these changes than ever before. The open coastal heathlands are disappearing before our very eyes due to discontinued management, nitrogen deposition, wind mill parks, climate change, spread of alien species, and commercial and private construction activities.

The coastal heathlands of Norway constitute a third of the total European heathland area. These areas are a large and integral part of our cultural landscape, formed by various means of human interaction since the ice sheet receded *ca.* 10 000 years ago. Some of these landscapes have been under continuous agricultural management for the last 1000 - 5000 years. Heather, in this system, has been vital to the survival of the coastal farmer. Feral sheep grazing the plant have, in combination with seasonal fishing, made a sustainable livelihood for him and his family.

The outer coastal regions of Norway have never received the same iconic status as the fjords and the mountains, neither from the people or the government. These landscapes have been overseen and "forgotten" compared to their European counterparts - a paradox in a country founded and anchored on its marine identity.

Today, the coastal heathlands of Norway are categorized as "highly endangered", but still with no conservation schemes, nor any protection plans. A vital part of our common European natural and cultural heritage is at risk, but we still lack many of the political, economic and legal means of handling our national and international obligations for future generations. Hopefully this workshop has helped shed light on some of the challenges ahead.

I.E. Måren
Department of Biology & Bergen Museum
University of Bergen, Norway

Workshop Programme

Sunday June 24 Trondheim	Arrival of participants in Trondheim. Accommodation in Thon hotel , Trondheim
Monday June 25 Tarva Full day excursion	07.00: Breakfast 08.00: Departure by speed boat from Trondheim to the island of Tarva. Welcome and introduction by Peter Emil Kaland, Asbjørn Moen and Liv S. Nilsen. 10.00 - 16.30 Excursion on Tarva (12.00 – 13.00: lunch). Presentation of ongoing research on the vegetational response of heathland management, the use of Norwegian feral sheep and challenges related to threats and conservation. There will also be a presentation of the military activities. 16.30: Speed boat transport to Rørvik. 20.30: Dinner at Norveg-centre , Rørvik Accommodation in Rørvik; Hotel, quay and meeting localities within walking distance.
Tuesday June 26 Borgan Full day excursion	07.00: Breakfast 08.00: Departure by speed boat from Rørvik to Borgan. 09.00 – 12.00: Excursion on Borgan. Walk through the outlying lands on Borgan and a visit to a local farmer. 12.00-13.00: Lunch at Borgan 13.00: Departure by small boats from Borgan to Kalvøya 13.30 – 17.30: Excursion to Kalvøya. Presentation of the research on vegetational response of heathland management and woodland regeneration. There will also be a presentation of the former summer-farming area. 18.00: Departure from Borgan. 20.30: Dinner at the Norveg-centre. Accommodation in Rørvik.
Wednesday June 27 Rørvik Full day workshop	08.00: Breakfast 09.00: Official opening of the workshop at the Norveg-centre; 12.00: Lunch 13.30: Theme 1 – Threats 15.00: Coffee break 15.30: Poster session 19.00: Dinner at Norveg-centre . Accommodation in Rørvik.
Thursday June 28 Vega Full day excursion	06.00: Breakfast 07.00: Departure by speed boat to the island of Vega . 09.00: Group is divided in two: (A) Calcareous rich heathlands at the world heritage site at Vega, and (B) The Eider Duck Museum . 11.00: Departure by speed boat to Hysvær. 11.30: Lunch at “Gåkka” - Hysvær. 12.30: Departure to Lånan . 13.30: Departure by speed boat to Nusfjord in Lofoten, a trip of approx 9 hours, depending on the weather. 17.00: Packed evening meal onboard the boat. 23.00: Approximate Arriva in Nusfjord. Accommodation at Nusfjord

<p>Friday June 29</p> <p>Lofoten</p> <p>Full day workshop</p>	<p>08.00: Breakfast</p> <p>09.00: Workshop</p> <p>Theme 2- Management</p> <p>12.00: Lunch</p> <p>13.00: Workshop</p> <p>Theme 3- Conservation</p> <p>17.00: Norwegian style marine inspired pick nick at Nusfjord</p> <p>18.00: The rest of the evening off for you to explore; fish, hike, relax...</p> <p>18.00-21.00: optional bird watching trip with professional guide</p>
<p>Saturday June 30</p> <p>Lofoten</p> <p>Full day excursion</p>	<p>07.30: Breakfast</p> <p>08.30: Departure Nusfjord in busses. Excursion to Vestvågøy and Austvågøy, Lofoten. Differences in heathland performance due to gradients in climate, nutrient conditions and land use practice can be seen.</p> <p>13.00: Lunch in Henningsvær.</p> <p>14.00: Bus excursion continues to Austvågøy and northern parts of Vestvågøy, Lofoten. Visit at the reconstructed Viking long house at Borg .</p> <p>19.00: Final stop at Utakleiv.</p> <p>20.00: Dinner party at Nusfjord with entertainment. Accommodation in Nusfjord.</p>
<p>Sunday July 1</p> <p>Bodø</p>	<p>07.30: Breakfast</p> <p>09.00: Departure Nusfjord by bus. Bus excursion through the western parts of Lofoten to Å.</p> <p>10.00: Speed boat departure from Å to Bodø , app. 2-3 hours.</p> <p>13.00: Approximate arrival at Bodø harbour and the end of the workshop.</p>

Symposium Programme

27th June:	RØRVIK
09.00-12.00	<i>Official opening of the 10th European Heathland Workshop</i>
	<i>Chairman: Peter Emil Kaland</i>
09.00-09.15	Official opening by Inger Lise GjØrv, The county governor of North Trøndelag
09.15-09.20	Welcome by Karin Sandaunet, The mayor of the municipality of Vikna
09.20-09.40	Heathland Conservation in Perspective Nigel R. Webb
09.40-10.00	The good, bad and the ugly - different human roles in the conservation of biodiversity Vigdis Vandvik
10.00-10.30	<i>Coffee Break</i>
10.30-11.00	Regional variation in northern coastal heathlands Asbjørn Moen
11.00-11.30	A historical perspective on management of land and resources in coastal societies. Aud Mikkelsen Tretvik
11.30-12.00	Etymology of “heath-land-scape”. Jacques De Smidt
12.00-12.20	Feral sheep in coastal heaths - developing a sustainable local industry in vulnerable cultural landscapes Liv Guri Velle
12.30-13.30	<i>Lunch</i>
13.30-16.00	<i>Session 1: Threats</i>
	<i>Chairman: Charles H. Gimingham</i>
13.30-13.50	Assessing empirical critical loads of nitrogen on Norwegian coastal Heathlands – a tool to preserve biodiversity. Per Arild Aarrestad
13.50-14.10	Nitrogen deposition and heathlands: impacts and management decisions. Sally Power
14.10-14.30	Deer and heathlands. John Underhill-Day & Anita Diaz
14.30-15.00	<i>Coffee Break</i>
15.00-15.20	Control of <i>Gaultheria shallon</i> at Avon Heath Country Park, Dorset. Toby A. Branston
15.20-15.40	Does the heathland flora in north-western Belgium show an extinction debt? Katrien Piessens & Hermy, M.
16.00-16.20	Atlantic heath vegetation at its northern fringe in Central and Northern Norway. Unn Tverraabak
16.30-18.30	<i>Poster session and refreshments</i>
	Posters - Threats:

Impact of nitrogen deposition in the different assignment of resources between reproductive and vegetative parts in *Calluna vulgaris*

Valbuena, L., Calvo L., Tárrega, R., Luis-Calabuig E.

The influence of burning and ammonium nitrate fertilization on the mycorrhizal colonization of *Calluna vulgaris* heathland in the Cantabrian mountain range (NW Spain)

Adrian M.; Calvo L. ; Terrón A. & Luis-Calabuig E.

Characterization of Cantabrian Mountain heathlands (NW Spain)

Marcos, E.; Calvo, L., Suárez, S.

Landscape change in coastal heathland.

Velle, L.G., Aasmundsen, A. & Nilsen, L.S.

Effect of climate change on above- and belowground plant dynamics in a heathland

Kongstad Pedersen, J. & Frost Arndal, M.

Posters – Management:

A review of the potential for heathland restoration and re-creation techniques to cause deleterious impacts to the soil and the historic environment.

Alonso, I.

“Learning” of cattle – a tool to improve management of dry heathlands?

Buttenschøn, R. M., Buttenschøn, J, Nielsen, L.

Grazing management of heathland in relation to game interests in Denmark

Buttenschøn, R. M., Buttenschøn, Buttenschøn, J., Madsen, P.

Vegetation changes caused by sheep or goat grazing on northern Spain heathlands

Berta M. Jáuregui, Raquel Benavides, Rocio Rosa-Garcia, Urcesino García¹, Koldo Osoro, Rafael Celaya

Feral sheep in coastal heathlands – what causes low lamb weights in western Norway?

Kittelsen, E.

Posters – Conservation:

Changes in the spatial distribution of heathlands in the Zaborski Landscape Park, N-W POLAND

Kunz M., Nienartowicz A. & Mizgalska, M.

Reproductive capacity of the heath *Daboecia cantabrica* through seeds along an altitudinal gradient in North Spain

Vera, M.L.

Can we model *Calluna vulgaris* heathland occurrence in the Cantabrian Mountains (N Spain) using satellite data at different resolutions?

Suárez-Seoane S., Marcos E. & Calvo L.

Plant-arthropod relationships in goat grazed heathlands

Rocio Rosa Garcia, Berta M. Jauregui, Raquel Benavides, Urcesino Garcia, Koldo Osoro, Rafael Celaya

Effects of prescribed fire and nitrogen addition on arthropods in *Calluna*-heathlands of NW Spain

Cuesta, David; Taboada, Ángela; Calvo, Leonor & Salgado, José M.

Rove beetles (Coleoptera, Staphylinidae) in *Calluna vulgaris* heathlands in NW Spain: a first survey

Tejero, Sergio; Taboada, Ángela; Calvo, Leonor; Cuesta, David & Salgado, José M.

29th of June: NUSFJORD

09.00-12.00 *Session 4: Management.*

Chairman: Sally Power

09.00-09.10

Welcome by

The mayor of the municipality of Vestvågøy

09.10-09.30

The history of Lofoten.

Pål Cristensen from Museum Nord in Lofoten

- 09.30-09.50 Development and vegetation on the early cultural heaths along the coast of North Trøndelag and Nordland
Unn Tverraabak
- 09.50-10.10 Traditional landuse methods of coastal heathlands in Norway
Peter Emil Kaland & Mons Kvamme
- 10.10-10.30 Agricultural establishment and development of heathlands; A history of west Norwegian management
Kari Loe Hjelle
- 10.30-11.00 *Coffee Break*
- 11.00-11.20 Management of heathlands on the former military training area in Poland
Andrzej Nienartowicz, Mieczyslaw Kunz, Milosz Deptula & Dominik J. Domin
- 11.20-11.40 Nutrient availability in dry heathland soils and nutrient content of *Calluna vulgaris* and *Deschampsia flexuosa* after prescribed burning
Goddert von Oheimb, Mohamed, Abdelmenam; Härdtle, Werner; Niemeyer, Thomas & Jirjahn, Bettina
- 11.40-12.00 Oral history of land use in coastal heathlands
Eva Remke, Carsta Gehrke & Irmgard Blindow
- 12.00-14.00 Lunch**
- 14.00-17.00 Session 5: Conservation**
Chairman: Nigel Webb
- 14.00-14.20 Why are cultural landscapes rich in species and why do they have different conservation values in rich and poor countries?
Ole R. Vetaas
- 14.20-14.40 Opportunities for extensive farming and heathlands in Europe
Steve Clarke, Herbert Diemont, Wim Geraedts, Louis-Marie Guillon, Joe Oliver & Jim Swanson
- 14.40-15.00 The condition of lowland heathlands in England: results from a survey outside protected sites
Isabel Alonso & Eleanor Hewins
- 15.00-16.00 Coffee Break**
- 16.00-16.20 Impact of sheep grazing on nutrient budgets of dry heathland ecosystems
Werner Härdtle, von Oheimb, G., Fottner, S., Niemeyer, M. & T. Niemeyer
- 16.20-16.40 Heathland creation techniques: ecological consequences for plant-soil and plant-animal interactions
Anita Diaz, I Green, D. Evans & P. Buckland
- 16.40-17.00 Factors affecting the distribution of the endangered holoparasite *Cuscuta epithimum* in heathlands
Klaar Meulebrouck, Ameloot, E., Verheyen, K. & Hermy, M.

Participants

Name	Affiliation	email
Akse Østebrot	Directorate for Nature Management (DN)	akse.ostebrot@dirnat.no
Andrzej Nienartowicz	Nicolaus Copernicus University	nienart@biol.uni.torun.pl
Anita Diaz	School of Cons Sci, Bournemouth University	adiaz@bournemouth.ac.uk
Ann Norderhaug	Norwegian Inst. for Agri. and Env. Research	ann.norderhaug@bioforsk.no
Asbjørn Moen	Museum of Natural History, NTNU	asbjorn.moen@vm.ntnu.no
Bas Van der Veken	KULeuven / SPK Natuurwerk / Natuurpunt	bas.vanderveken@biw.kuleuven.be
Bjørn Vikøyr	Vest-Agder	bvi@fmva.no
Charles Gimingham	Retired	c.gimingham@btinternet.com
Elena Marcos	University of León, Spain	degemp@unileon.es
Eva Kittelsen	University of Bergen	eva.kittelsen@student.uib.no
Eva Remke	EMA, University Greifswald	evaremke@gmx.net
Fred Daniels	Plant Ecology, Muenster	daniels@uni-muenster.de
Geert de Blust	Research institute for nature and forest	geert.deblust@inbo.be
Goddert von Oheimb	University of Lüneburg	vonoheimb@uni-lueneburg.de
Heather Tidball	Dorset County Council	h.aj.tidball@dorsetcc.gov.uk
Herbert Diemont	Alterra	Herbert.Diemont@wur.nl
Hilary Kirkpatrick	Ulster Wildlife Trust	alexandheather@btinternet.com
Inger Elisabeth Måren Ingerid Angell- Petersen	University of Bergen Directorate for Nature Management (DN)	inger.maaren@bio.uib.no ingerid.angell-petersen@dirnat.no
Ingvild Gabrielsen	Fylkesmennene i Nordland	iga@fmno.no
Isabel Alonso	Natural England	isabel.alonso@naturalengland.org.uk
Jacques de Smidt		jt.de.smidt@hetnet.nl
Jan Bastiaens	Flemish Heritage Institute	jan.bastiaens@rwo.vlaanderen.be
Jan Van den Berghe Jane Kongstad Pedersen	SPK Natuurwerk / Natuurpunt Forest and Landscape, KVL	jan.vandenberghe@spk.be JKOP@kvl.dk
Jap Smits	Staatbosbeheer	jap.lian@chello.nl
Jim Swanson	Grazing Animal Project	jim.swanson@grazinganimalsproject.info
Joe Oliver	Natural England	Joe.oliver@naturalengland.org.uk
John Underhill-Day	RSPB	john.day.arne@rspb.org.uk
Jon Buttenschøn	Forest and Landscape, KVL	
Kari Loe Hjelle	University of Bergen	kari.hjelle@bm.uib.no
Katrien Piessens	University of Leuven	katrien.piessens@biw.kuleuven.be
Klaar Meulebrouck	University of Leuven	klaar.meulebrouck@biw.kuleuven.be
Kristine Fjordheim	University of Bergen	Kristine.Fjordheim@bio.uib.no
Lars Strandberg	Väst kuststiftelsen	lars.strandberg@vastkuststiftelsen.se
Leonor Calvo	University of León	deglcg@unileon.es
Liv Guri Velle	Norwegian Inst. for Agri. and Env. Research	liv.velle@bioforsk.no
Liv S. Nilsen	Norwegian Inst. for Agri. and Env. Research	liv.nilsen@bioforsk.no
Lynne Farrell	Scottish Natural Heritage	Lynne.farrell@snh.gov.uk
M ^a Luz Valbuena	University of León	degmvr@unileon.es

Mari de Bijl	Brabants Landschap Netherlands	mdebijl@planet.nl
María Luisa Vera	Universidad de Oviedo	mlvera@uniovi.es
Marie Arndal	Forest and Landscape, KVL	mfa@kvl.dk
Martin Auld	RSPB	martin.auld@rspb.org.uk
Meg Pollock	SAC Hill & Mountain Research Centre	meg.pollock@sac.ac.uk
Mieczyslaw Kunz	Nicolaus Copernicus University	met@umk.pl
Mons Kvamme	University of Bergen	Mons.Kvamme@c2i.net
Nick Sibbett	Natural England	nick.sibbett@naturalengland.org.uk
Nigel Webb	Retired	nigel.r.webb@btopenworld.com
Ola Betten	Directorate for Nature Management (DN)	ola.betten@dirnat.no
Ole R. Vetaas	Unifob-Global / University of Bergen	ole.vetaas@sfu.uib.no
Paul Daniel Kraus	European Fire in Nature Conservation Network	daniel.kraus@gfmc.org
Per Arild Aarrestad	NINA, Trondheim	per.a.aarrestad@nina.no
Peter Emil Kaland	University of Bergen	peter.kaland@bio.uib.no
Pål Thorvaldsen	Norwegian Inst. for Agri. and Env. Research	pal.thorvaldsen@bioforsk.no
Rafael Celaya	SERIDA, Spain	rcelaya@serida.org
Rien Aerts Rita Merete	Dept of Systems Ecology, Vrije Universiteit	Rien.Aerts@ecology.falw.vu.nl
Buttenschön	Forest and Landscape, KVL	rmb@kvl.dk
Rocio Garcia Rosa	SERIDA, Spain	entomteam@hotmail.com
Sally Power	Imperial College London	s.power@imperial.ac.uk
Sigrid Kaland	Bergen Museum, University of Bergen	sigrid.kaland@bm.uib.no
Steve Clarke	Natural England	
Susana Suarez-Seoane	University of León	degsss@unileon.es
Svein Haaland	NRK	svein.haaland@nrk.no
Sølvi Svendsen	Norwegian Inst. for Agri. and Env. Research	solvi.svendsen@bioforsk.no
Toby Branston	RSPB	Toby.Branston@rspb.org.uk
Toby Taylor	RSPB	toby.taylor@rspb.org.uk
Torild Kvingedal	The Heathland Centre, Lindås	lyngheisenteret@nordhordaland.net
Unn Tverraabak	Tromsø University College	Unn.Tveraabak@hitos.no
Vigdis Vandvik	University of Bergen	vigdis.vandvik@bio.uib.no
Werner Härdtle	University of Lüneburg	haerdtle@uni-lueneburg.de

**Excursion sites at the 10th European Heathland Workshop 2007,
Central to Northern Norway**

