



The workshop “*A shift in natural resources management paradigm: from resource sufficiency to functional integrity?*” took place during the VIII International Rangeland Congress – XXI International Grassland Congress, 29<sup>th</sup> June - 5<sup>th</sup> July 2008, Hohhot, China.

Editorial Committee

Bernard Hubert, Agropolis International, Montpellier (France)

Ruijun Long, Int. Center for Tibetan Plateau Ecosystem Management, Lanzhou (China)

Hermes Morales, Instituto Plan Agropecuario, Montevideo (Uruguay)

Aboubakar Njoya, IRAD, Yaoundé (Cameroon)

Peggy Strankman, Canadian Cattlemen’s Association, Calgary (Canada)

M.E. Wedderburn, Ruakura Research Center, Hamilton (New Zealand)

English reviser

Grace Delobel

Cover

*Hailar district, Inner Mongolia, China*

© Bernard Hubert

Reference

Kammili T., Hubert B., Tourrand J.F. (eds), 2011. *A paradigm shift in live-stock management: from resource sufficiency to functional integrity*. 28<sup>th</sup> and 29<sup>th</sup> June 2008, Hohhot, China. Cardère éditeur Lirac, France, 272 p.

A paradigm shift in  
livestock management:  
from resource sufficiency  
to functional integrity

28<sup>th</sup> and 29<sup>th</sup> June 2008, Hohhot, China

Trish Kammili  
Bernard Hubert  
Jean-François Tourrand

editors

Cardère éditeur

# Table of Contents

The need for a shift in Natural Resources Management Paradigm in the area of Livestock Research and Practices (B. Hubert) .....9

1. Institutionalising understandings: from resource sufficiency to functional integrity (B. Hubert, R. Ison) .....11
2. Livestock farming: re-addressing mobility and collective action .....17

## ASIA

23

Sustainable Ways of Subsistence in a Degraded Environment. Tianshui, North-Western China (G. Yanming, S. Dideron, W. Lan, L. Zhanfang, Z. Lu, Z. Hui) .....25

A Strategy for Sustainable Management in a Rangeland Ecosystem. The Qinghai-Tibetan Plateau (R. Long, S. Dong, Z.H. Shang) .....35

Community shared Natural Resources Management. A solution to Pastureland Degradation in Mongolia (B. Altantsegtseg, N. Oyunbileg) ....47

*Re-Building traditional Knowledge to Innovate?* (N. Girard) .....53

Forage Resource Utilization in Mongolia. Two Concepts frequently applied in Range Ecology (F. Joly, S. Saïdi, T. Samdanjigmed, S. King, C. Feh) .....57

## SOUTH AMERICA

71

South American Livestock Farming Expansion. The Long Way to Sustainability (H. Morales, V. Homem, J.F. Tourrand, M. Champredonde) .....73

*A “transatlantic” Overview of Historical and Current Livestock Narratives* (B. Toutain) .....85

A Peasant Society confronting a Globalized Market. The Bolivian Altiplano, between immediate Quinoa market Profits and an Ecological dead End (abstract of the DVD-rom) (F. Léger, H. Bautista) .....91

## NORTH AMERICA

95

Introducing Conservation Livestock Grazing in Protected Mixed-grass Prairies. Grasslands National Park of Canada (N. Koper) .....97

Addressing Wicked Environmental Problems in Canadian Cattle Industry  
(P. Strankman) .....117

*Learning by Doing in order to Develop New Ecologically Sensitive Cattle  
Management (V. Homem) .....129*

AFRICA 131

Global Changes and Decentralized Policies. Driving Forces of pastoralism  
Dynamics in the Sahel, Western and Central Africa (B. Toutain, O. Touré,  
A. Ickowicz, B. Dodo, H. Ouédraogo, A. Njoya) .....133

*Sahel and Pampa at Stake in a Changing World! A South-American point  
of view (H. Morales) .....151*

EUROPE 159

Hardy outdoor Breeding. Innovation Networks for Functional Integrity in  
Agri-food Processing Systems, Haut-Languedoc, France (Y. Chiffolleau,  
F. Dreyfus) .....161

*Adaptative Management, a Key for Multi-functionality  
(M.E. Wedderburn) .....177*

Grazing Management on dynamic, heterogeneous Rangelands. Evolution of  
referential Methods at the Regional Park of Massif des Bauges, Northern  
Alps, France (C. Agreil, D. Magda, G. Guérin, P. Mestelan) .....183

*Assessing Rangeland Value: a combined Standpoint of the Herder and ...  
the Grazer! (T. Kammili).....215*

*Could Biodiversity be Recognized as an Agricultural Product?  
(P. Strankman) .....217*

OCEANIA 219

Recovering Functional Integrity in Pastures Dominated by an Invasive  
Grass Species (J. Firn, C. Arnold, Y. Buckley) .....221

NEW AVENUES FOR RESEARCH 237

Conducting integrated Research (R. Burton, K. Rønningen,  
M.E. Wedderburn).....239

Workshop: Main Outcomes and Recommendations (B. Hubert,  
M.E. Wedderburn, H. Morales, P. Strankman, R. Long, A. Njoya).....265

# The need for a shift in Natural Resources Management Paradigm in the area of Livestock Research and Practices

BERNARD HUBERT

Agropolis International, Montpellier, France – [bernard.hubert@avignon.inra.fr](mailto:bernard.hubert@avignon.inra.fr)

---

**T**HIS BOOK IS the result of a workshop which was held at Hohhot a few days before the VIII Rangeland/XXI Grassland International Congress in order to open a space for a debate on what is at stake nowadays regarding livestock all over the world. In order to go beyond the current discourses, dilemmas and controversies on the contribution of livestock to greenhouse gas production either to meet the demand for meat from developed societies or at least to allow poor farmers to survive in hardy environments, we have considered that we have to change our worldview on what livestock farming means in a world which is at once globalised and diversified! Our aim was to promote dialogue and discussions between scientists and practitioners on the thematic of functional integrity and sustainable management of natural resources in livestock systems. The frame of reference was based on three factors crossed with three induced dynamics.

Three principal categories of factors that affect the sustainability of the system:

- Reconfiguration of markets, at both local and global scales;
- Change in environmental factors, particularly those linked to climate change;
- Evolution of public policies that could affect the role played by the State, market regulations or the importance given to environmental issues.

These above mentioned factors are clearly present in all the regions of the globe albeit to a greater or lesser extent. They influence livestock systems and drive them into a dynamic that can affect:

- Institutional set up and arrangements inside of which these systems are organized (social structures, modalities of the use of space);
- Modes of collective actions, bundles of rights, and reconfiguration of identities (linked to the profession, cultural values, locality etc.);
- Re-qualification of resources, practices and areas (forage intensification, innovative systems of pastoral resources management, breeder skills, sedentarization, etc.).

More than 100 people attended this workshop encouraging us to take the initiative of creating a network on these issues, the LiFLoD network ("Livestock Farming and Local Development") and to propose further actions involving those who are interested everywhere in the world, starting by another workshop during the next IRC, which will be held in April 2011 at Rosario (Argentina).

As a first milestone of this process we are very glad to publish this book, with three kinds of papers: (1) the texts of the full presentation that were made at Hohhot together by researchers, practitioners and pastoralists, (2) the reflection of the discussants who were asked to react during the workshop and (3) some voluntary papers that were submitted from the audience. These papers are grouped together by continents in order to facilitate browsing by the reader facing the diversity of the considered situations. The main outcomes stemming from the discussions during the workshop are presented in the conclusion of this book, as some recommendations for research and policy making priorities...

This is why, in this introduction I would like to put the papers presented to the test of the frame of reference we had previously set up and finally give some keys to the papers that are published in this book and how it illustrates the necessity of designing a new vision on what livestock farming is today and how it could evolve considering some major economic, social and environmental stakes our world is facing... But first in order to set the theoretical frame of this paradigm shift we are speaking for, I'll start by a concept note I wrote with an Australian colleague, Ray Ison, Professor at Monash University, Melbourne, and at the Open University in Milton Keynes (UK), presenting our theoretical basis.