

The Carbon Ranch: A Global Perspective



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EcoAgriculture Partners**

**Quivira Coalition Conference
“The Carbon Ranch”
Albuquerque, New Mexico
11 November 2010**



Age-old challenges for farmers and ranchers



- Supply food needs and demand
- Ensure household livelihood
- Sustain soil fertility
- Secure access to water
- Manage pests and diseases
- Manage market risks & opportunities

New challenges:

- Supply ecosystem services
- Adapt to, and mitigate, climate disruption

Ecoagriculture landscapes: managing for people, food and nature—and climate

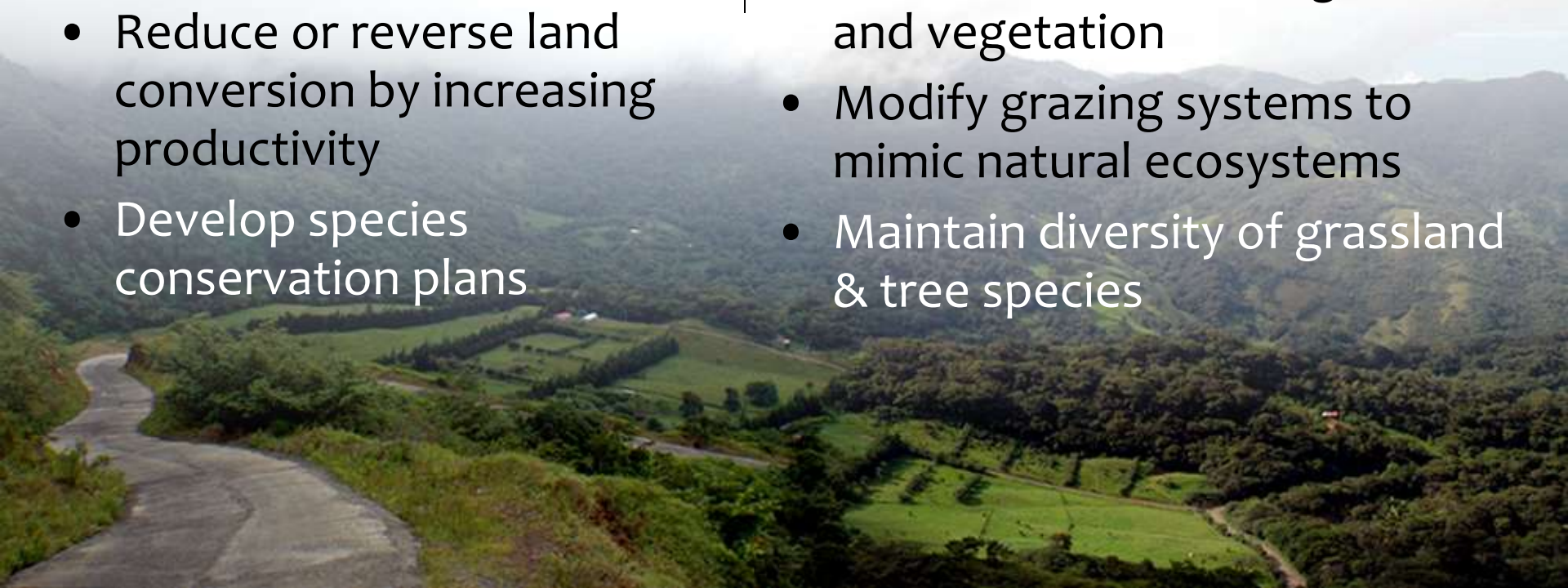


In conservation areas

- Natural areas that benefit local ranching communities
- Provide watershed protection, habitat connectivity
- Reduce or reverse land conversion by increasing productivity
- Develop species conservation plans

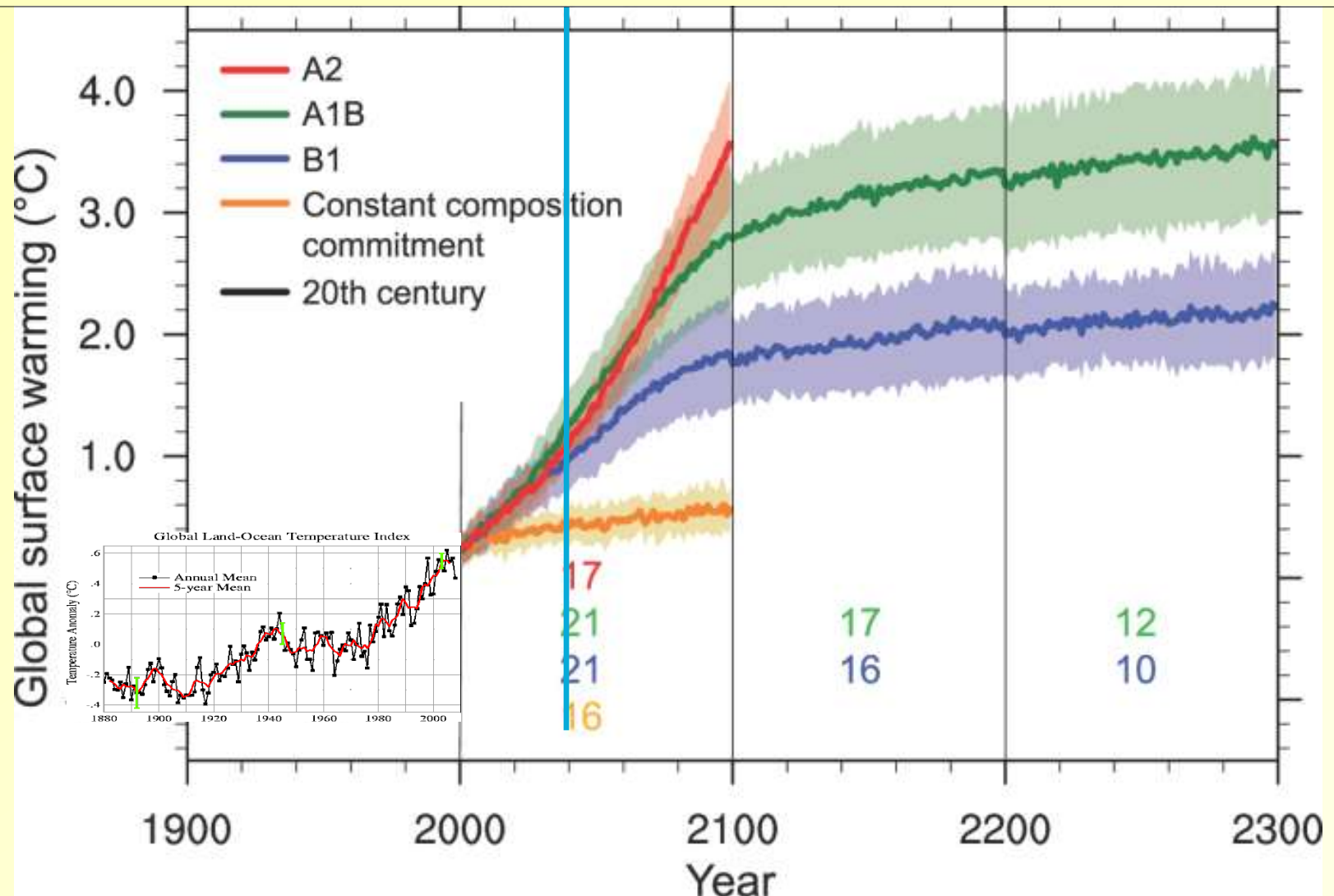
In production areas

- Minimize agricultural pollution (incl. GHG)
- Manage water flow, use & infiltration at all scales
- Increase carbon storage in soils and vegetation
- Modify grazing systems to mimic natural ecosystems
- Maintain diversity of grassland & tree species



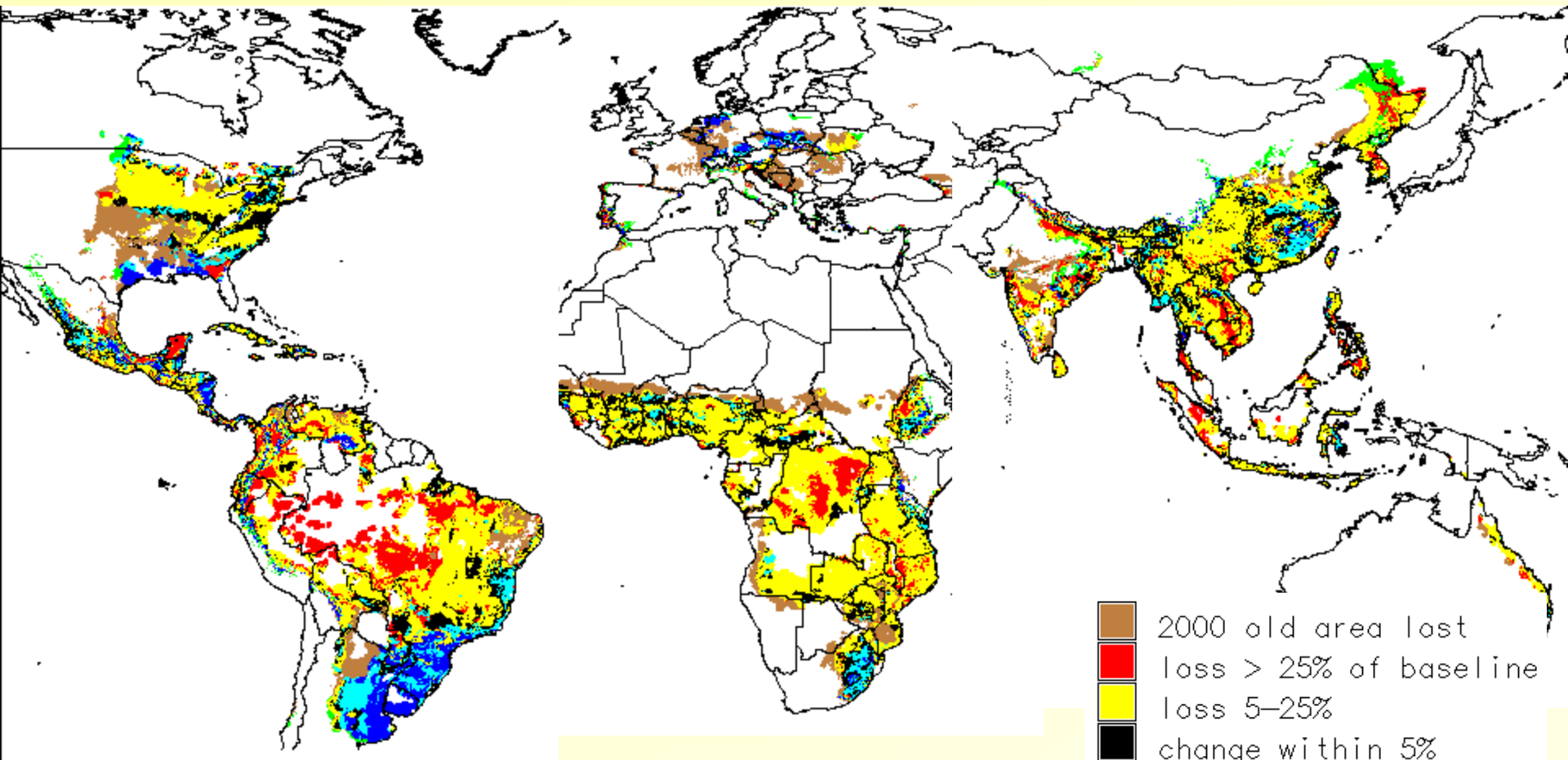
Climate disruption

Projected temperature changes



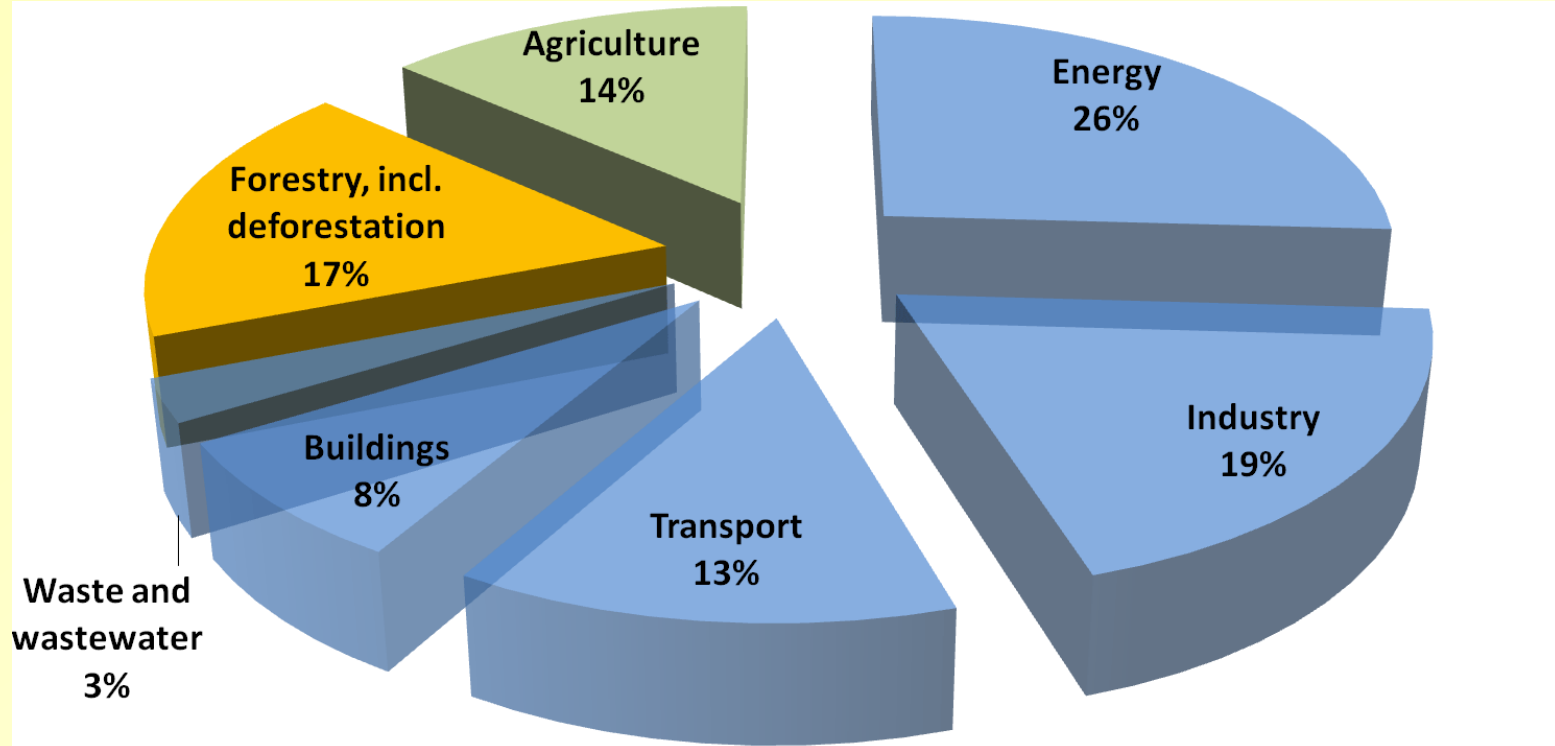
Projected climate change effects- Hadley A2

Rainfed maize yields decline 17% by 2050



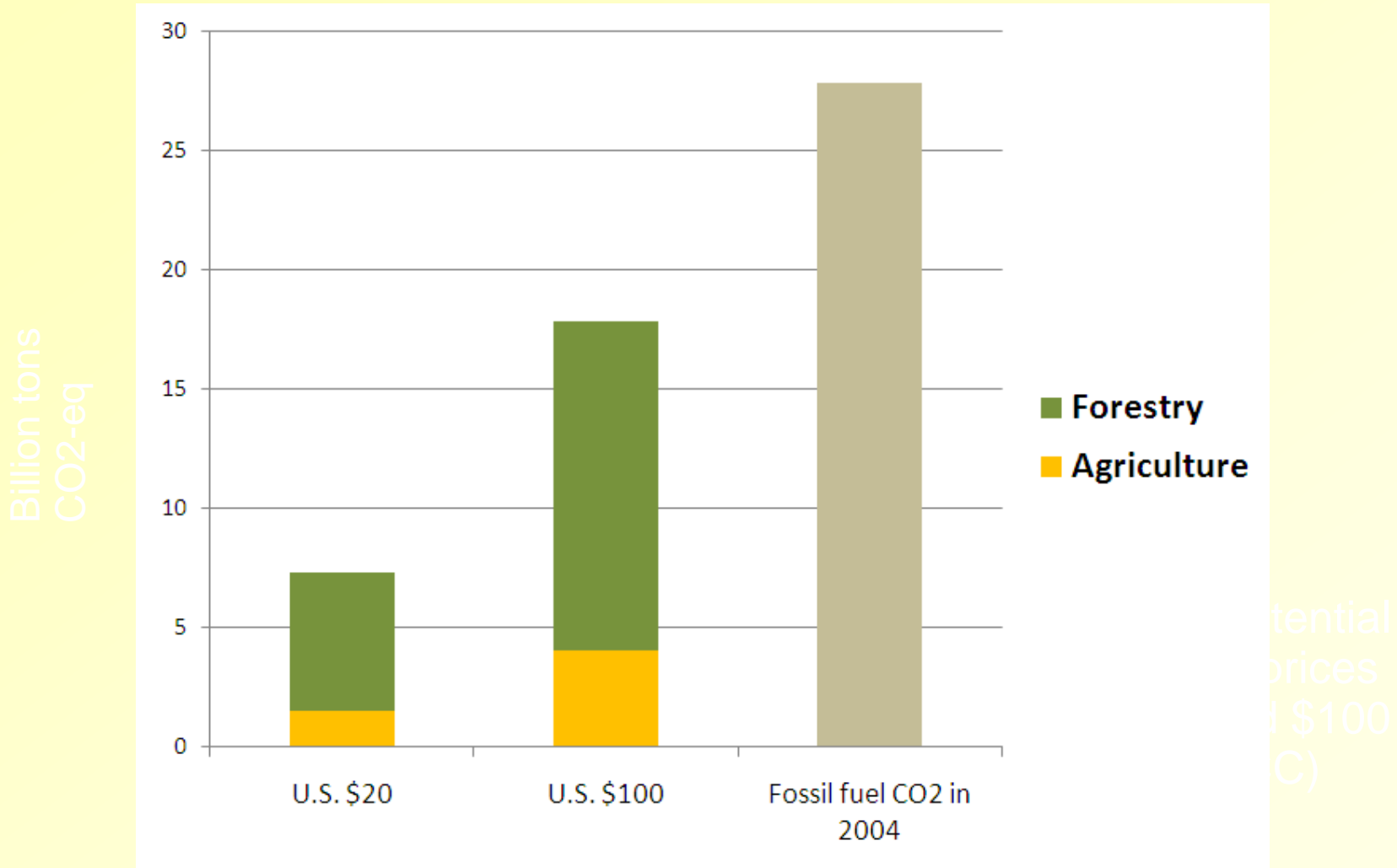
Preliminary results

Agriculture and land use: 31% of global greenhouse gas emissions



by
sector in 2004,
Source: IPCC

Potential for emissions reduction and GHG sequestration through land use



Strategies for GHG emissions reduction and sequestration



Restore degraded lands



Farm & ranch with perennials



Enrich soil carbon



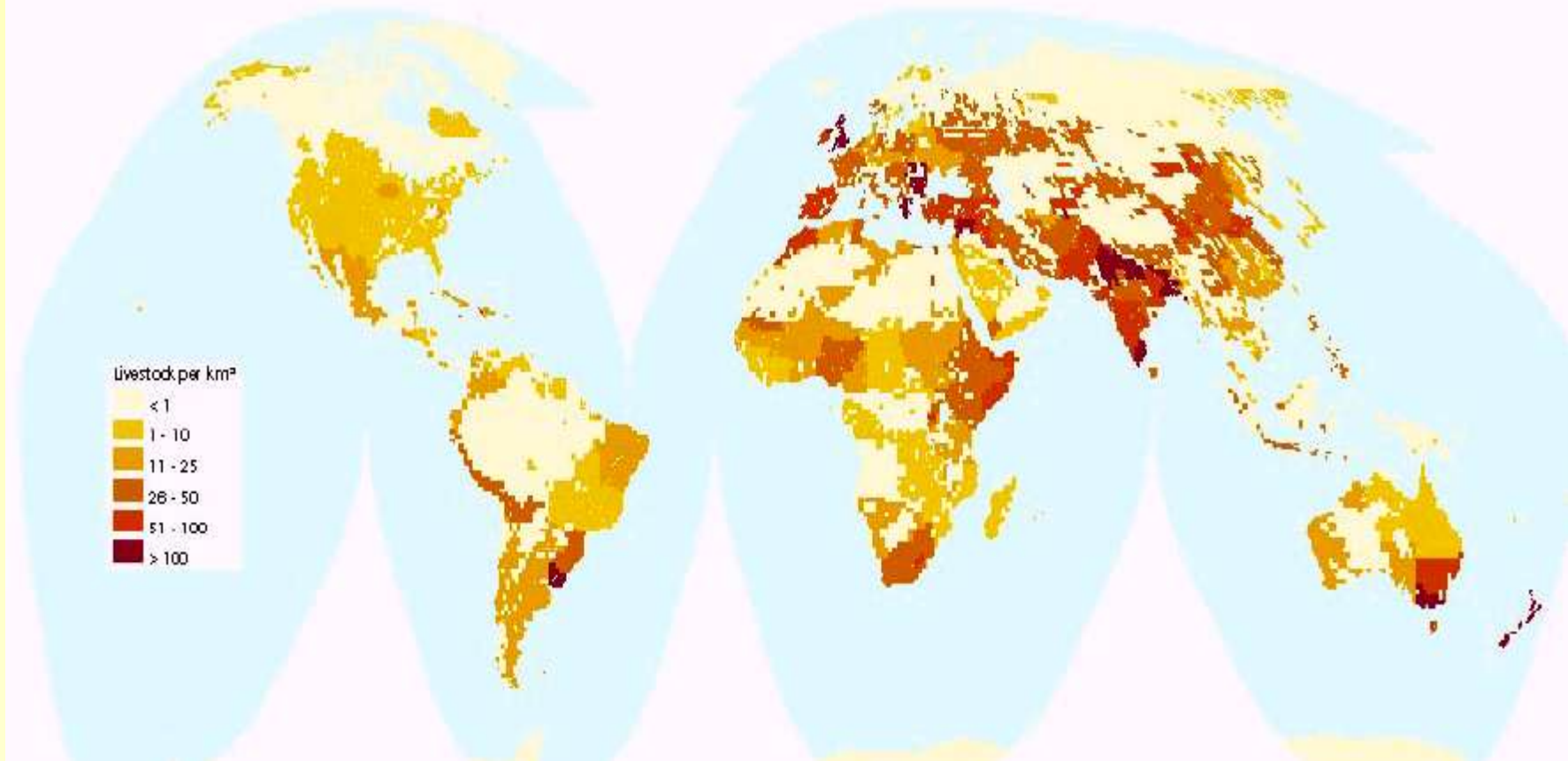
Sustainable livestock systems



Protecting natural habitat

Livestock systems: Potentials for climate benefits

Global Livestock Density

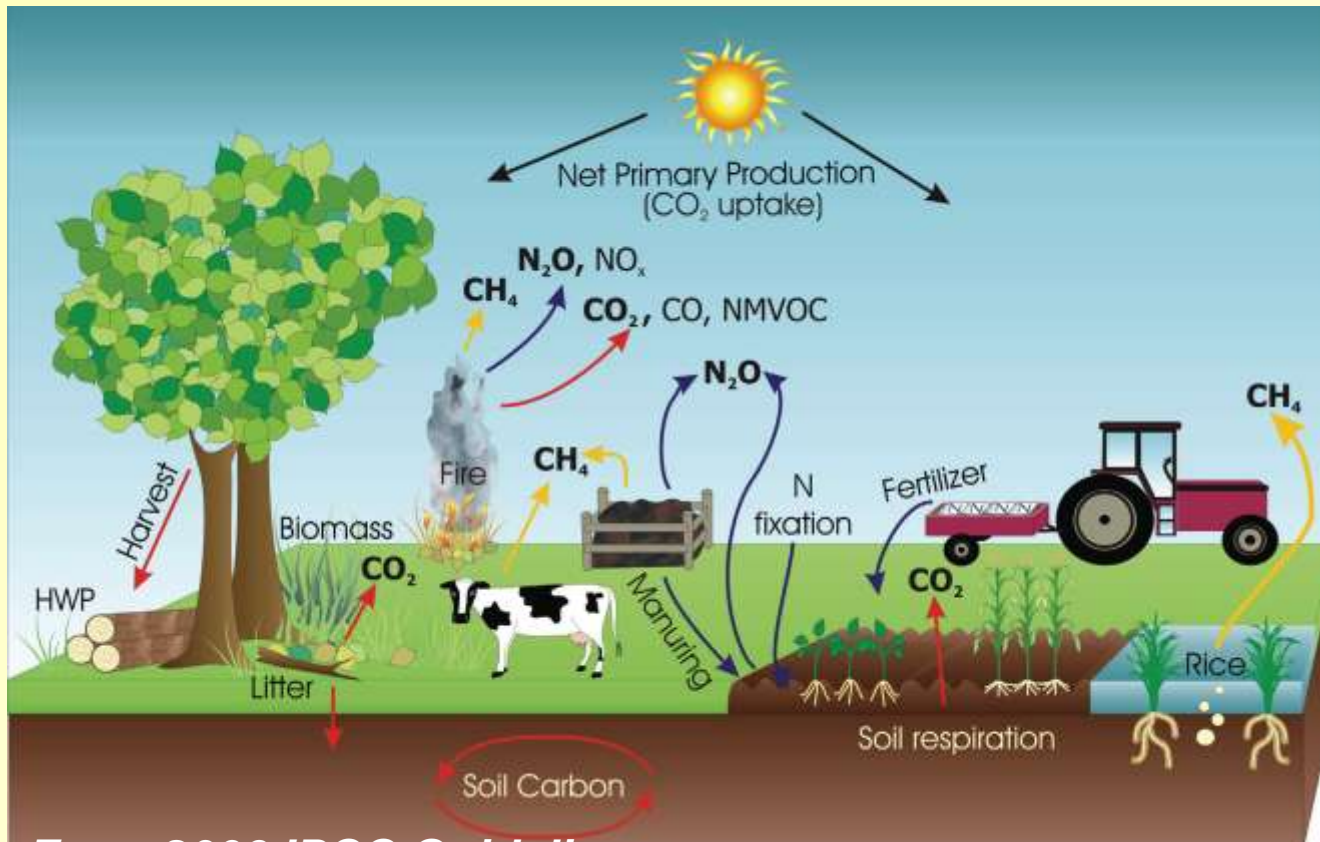


GHG's from livestock land use ~ 17% total



**Biomass C
stock changes**

**N_2O , NO_x , CO ,
 CH_4 emissions
from burning**



**CH_4 and N_2O
from manure**

**Soil N_2O
emissions**

**Enteric
methane**

**Soil C stock
changes**

From 2006 IPCC Guidelines

Estimated economic mitigation potential by management practice in Africa



By 2030 at Carbon Prices up to \$20/ton of CO₂e_q

	Cropland Management (MtCO ₂ e/yr)	Grazing Land Management (MtCO ₂ e/yr)	Restoration of Organic Soils (MtCO ₂ e/yr)	Restoration of Degraded Land (MtCO ₂ e/yr)	Other Practices (MtCO ₂ e/yr)	Total (MtCO ₂ e/yr)
East Africa	28	27	25	13	15	109
West Africa	16	15	14	7	8	60
Central Africa	13	12	11	6	7	49
North Africa	6	6	6	3	3	25
South Africa	6	5	5	3	3	22
Total	69 (26%)	65 (25%)	61 (23%)	33 (12%)	37 (14%)	265

Source: Smith et al (2008) in Pender et al (2009)

Diverse landscape challenges require locally-adapted solutions



Uganda



New Zealand (?)



Australia

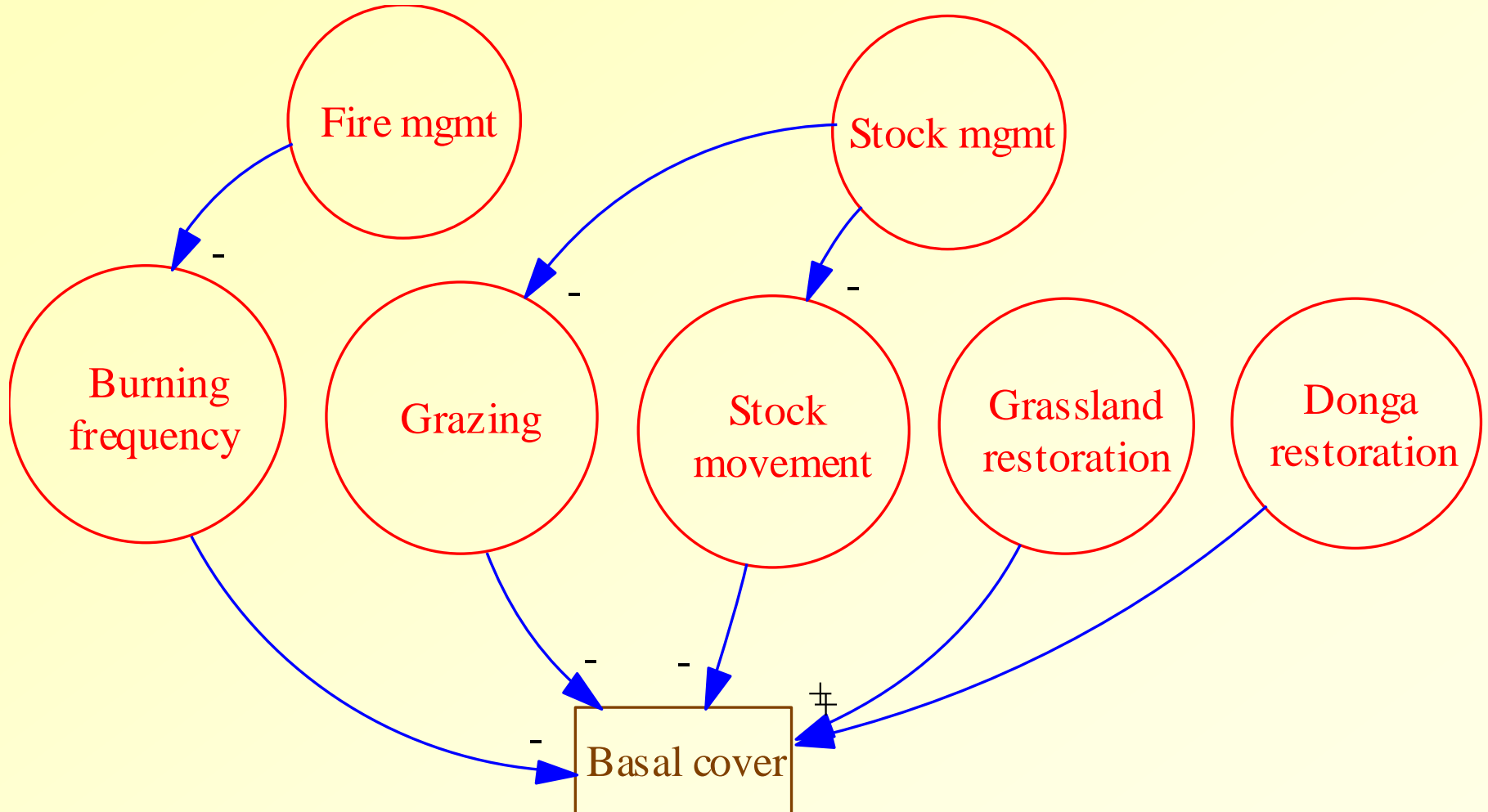


Niger

Degraded rangeland restoration in Drakensberg, South Africa: From this...



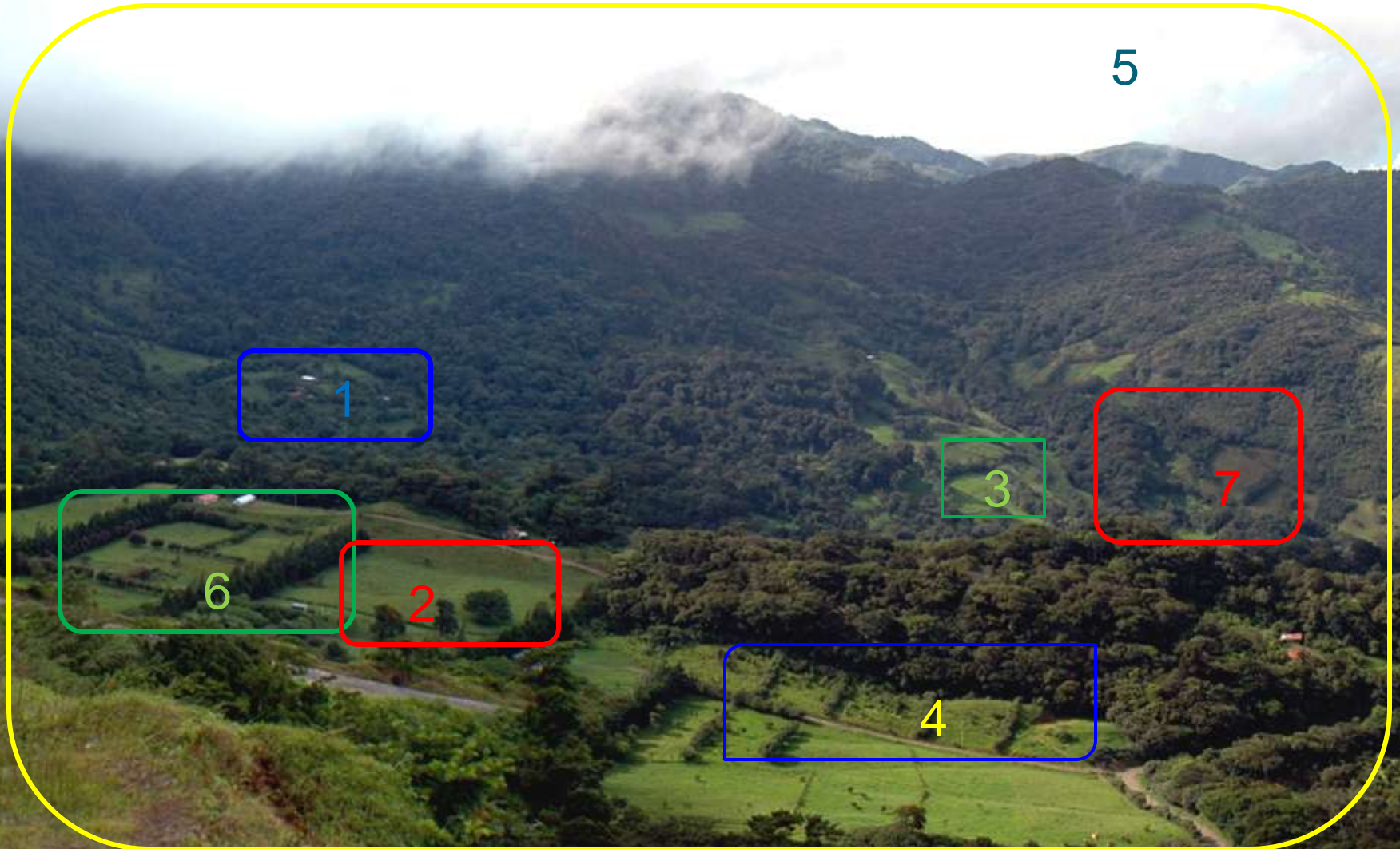
Management for land cover in Drakensberg



To this!



Conserving and sequestering carbon in dairy communities in Costa Rica



Financial incentives for carbon ranching

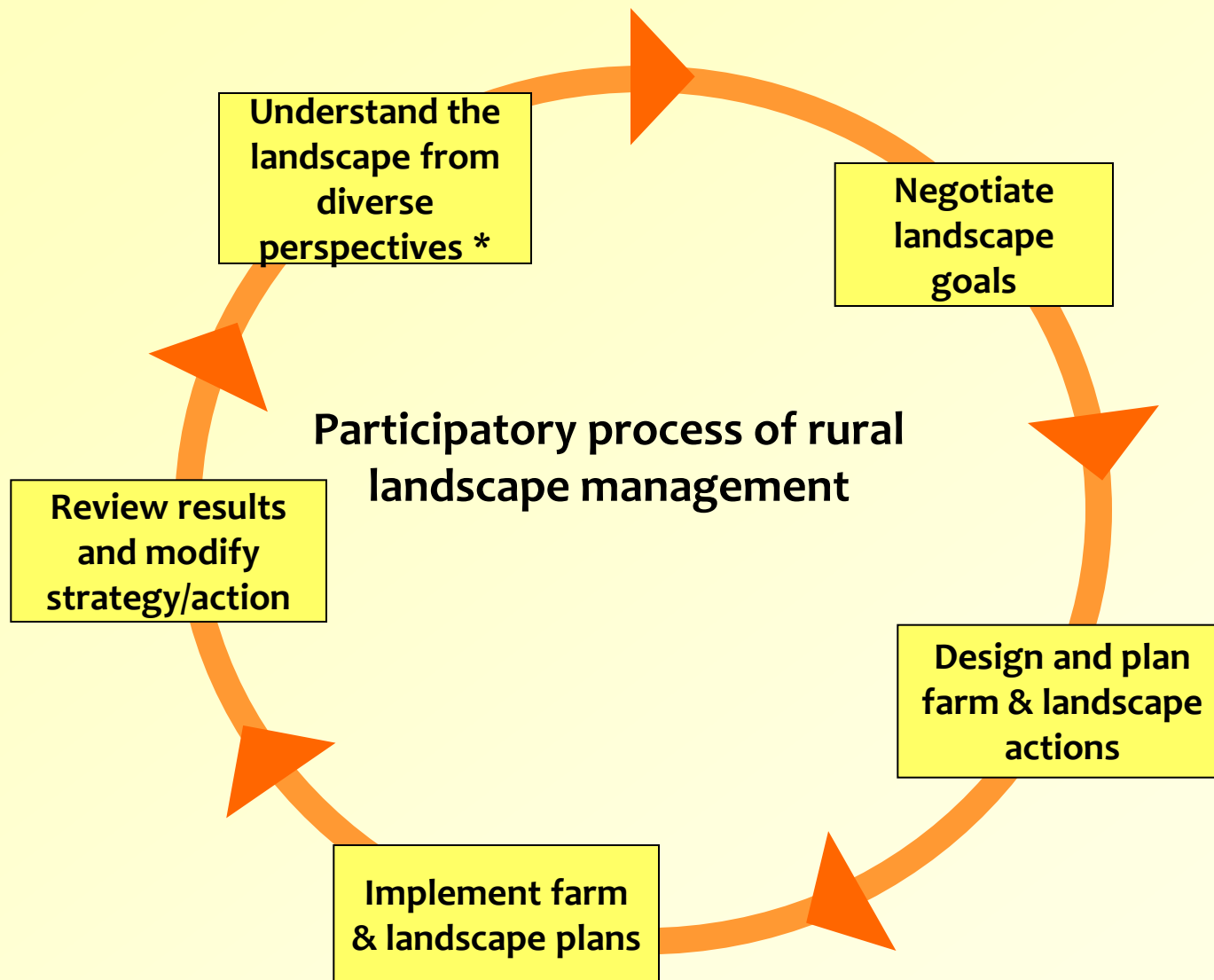
- Improved livestock health and productivity
- Reduced risks
- Increased land values
- Government payments
- Public procurement
- ‘Green/climate’ finance
- Climate-friendly & sustainable eco-labeling & certification
- Supply chain standards
- Voluntary carbon offset markets
- Regulatory offset markets



Multi-stakeholder, collaborative planning & action



Process of multi-stakeholder ecoagriculture landscape management



Core capacities needed to implement ecoagriculture landscape strategies


- 1) Landscape literacy (spatial, functional)
- 2) Multi-stakeholder deliberation and negotiation (across sectors)
- 3) Ranch & landscape 'design' (who does what, where, how?)
- 4) Markets, finance, policy expertise
- 5) Landscape tracking and assessment



The Landscape Measures Initiative: Tools for assessing landscape performance



Feed on Posts Comments



LANDSCAPE MEASURES RESOURCE CENTER


Assessing biodiversity conservation, agricultural production
and livelihood performance at a landscape scale

Home

Mar 25th, 2008 by [leb3](#)

The Landscape Measures Resource Center (LMRC) is a collection of ideas and tools to aid in managing areas where interests in protecting biodiversity, producing food and securing rural livelihoods converge. The LMRC is rooted in the premise that measurement enhances management. Learning to measure how landscapes perform in delivering food, biodiversity and livelihood outcomes is anticipated to endow management systems with the capacity to sustain these multiple functions while reducing or reversing the degradation of natural resources.

The creators of the LMRC recognize producers of crops, livestock, fish and forest resources as stewards of ecosystems and biodiversity. The LMRC is designed to bring the knowledge of these natural resource managers and their supporters to bear on the challenges of landscape measurement and management.



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► **Process**

Unit 1 Defining the approach
Unit 2 Engaging stakeholders
Unit 3 Creating performance goals and criteria
Unit 4 Choosing indicators
Unit 5 Establishing a baseline
Unit 6 Tracking change

► **Practice**

Conceptual tools
Communication tools
Landscape planning tools
Scoring tools
Data collection tools
Gender analysis tools
Spatial analysis tools

Contents

- ❑ Process
- ❑ Practice
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- ❑ Glossary

A web-based hub
for a virtual
learning network

Testing in “learning
landscapes”

www.landscapeasures.org

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(US, East Africa,
Mesoamerica)

Leadership Development

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Thank you!

