Forest and Landscape restoration
From Genes to Society

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www.bioversityinternational.org/forests/

Bioversity International

CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

ETH zürich

The future of forest landscapes

BONN CHALLENGE

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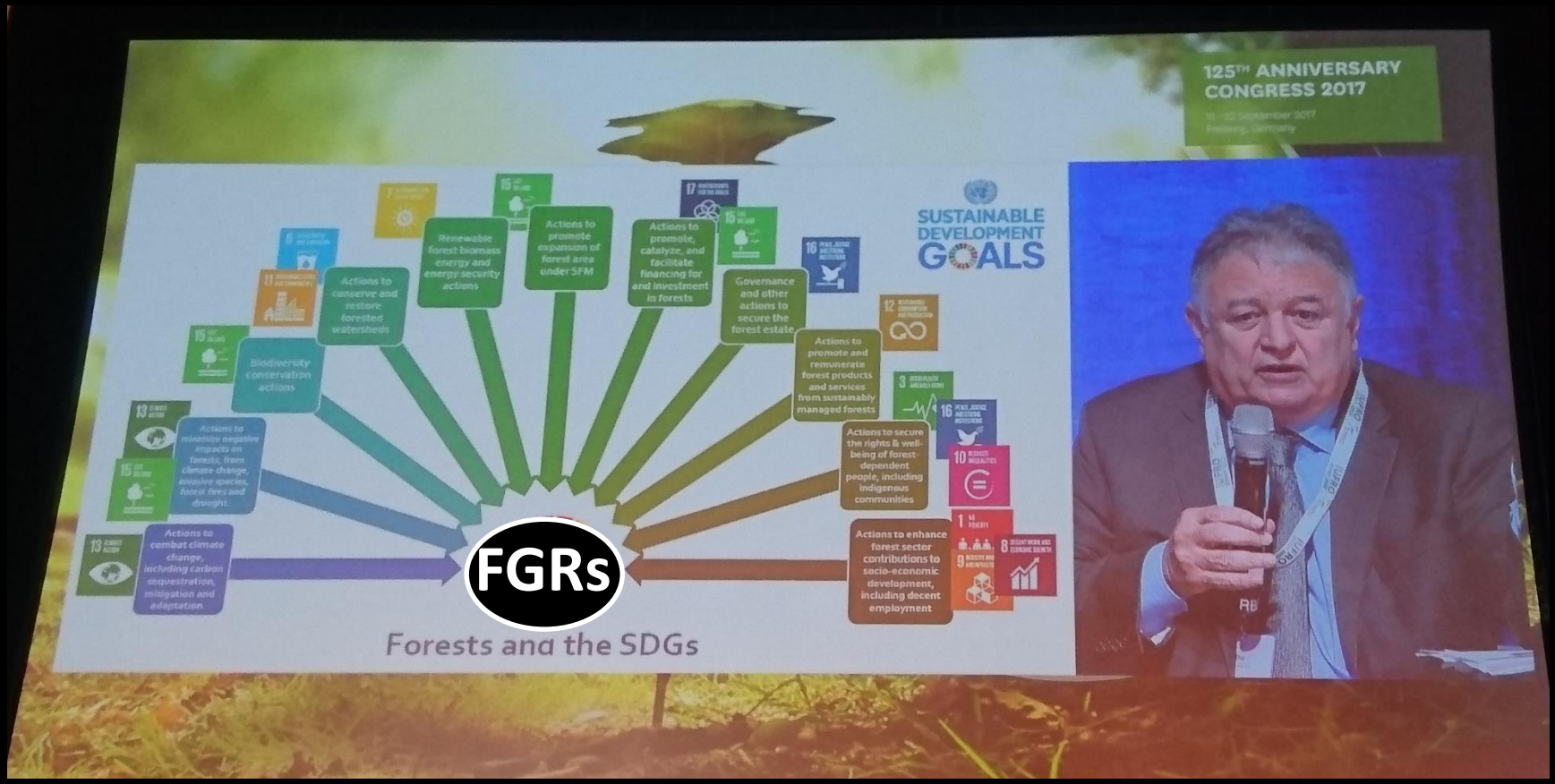
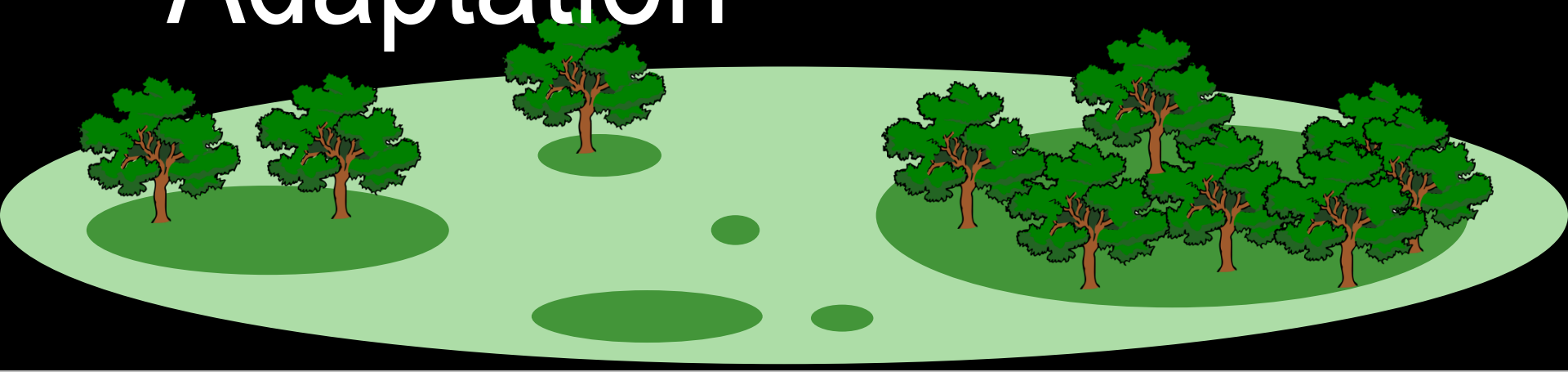
At the Foundations of SDG



Diversity is the foundation for resilient FLR:

- Survival
- Productivity
- Adaptation



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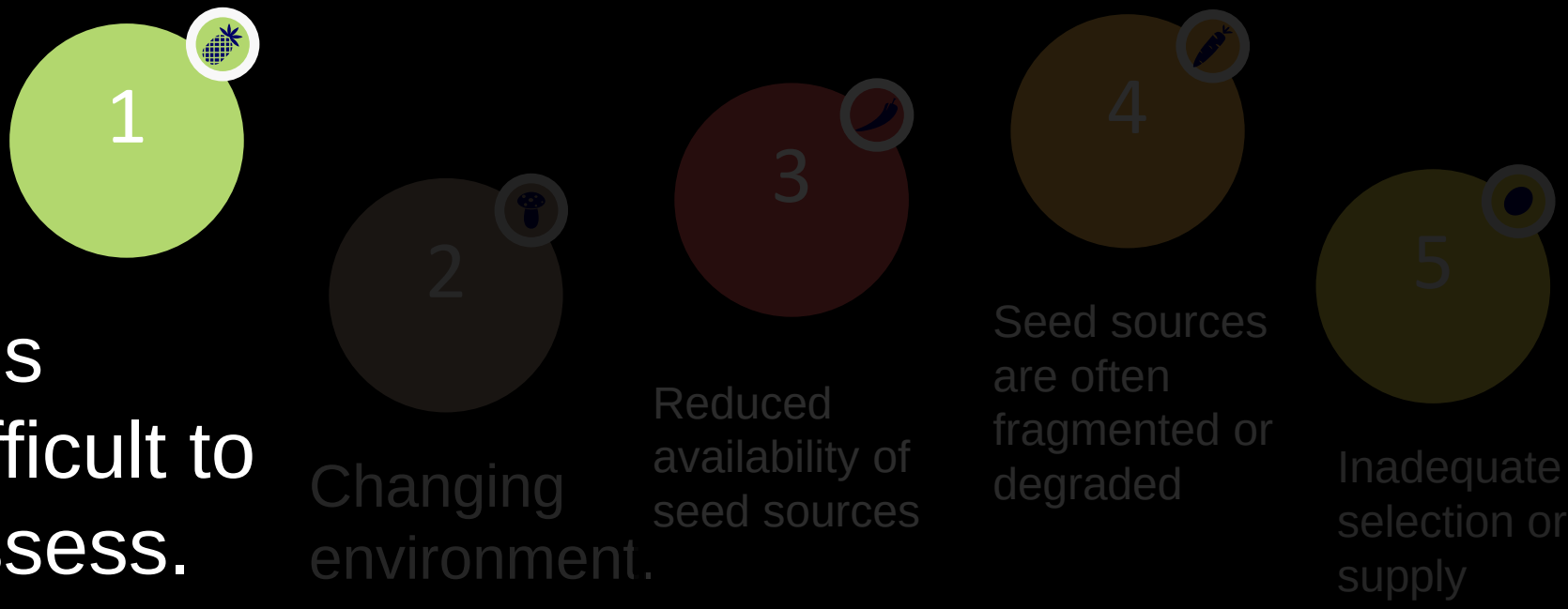
Forest Genetic Resources (FGRs) and Restoration



Share 96.9% of DNA

Forest Genetic Resources (FGRs) and Restoration

Jalonen *et al* 2017

The FGR Team

www.bioversityinternational.org/**forests/**

Integration framework at Bioversity

Restoration

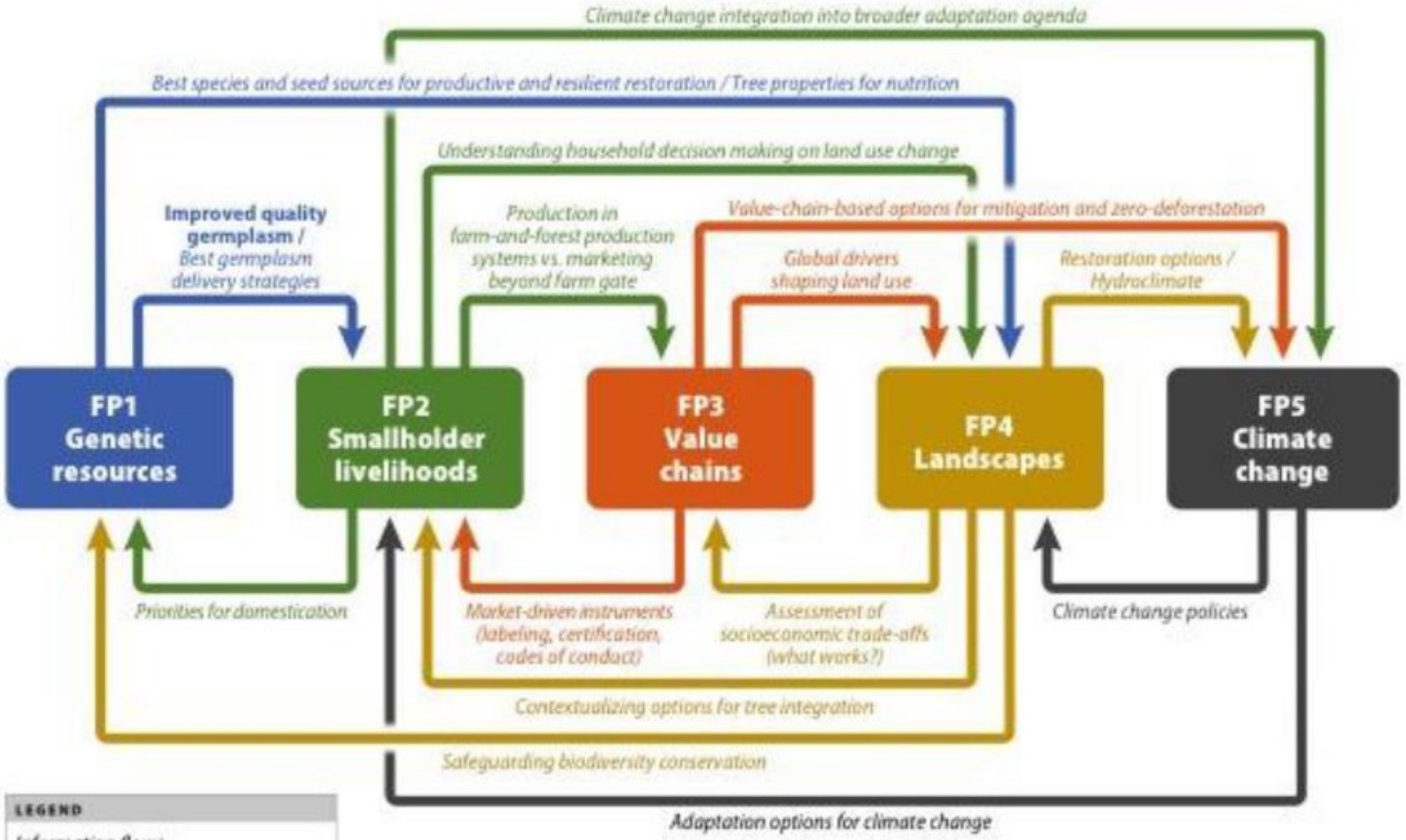
CONSUME | PRODUCE | PLANT | SAFEGUARD

Healthy diets from sustainable food systems

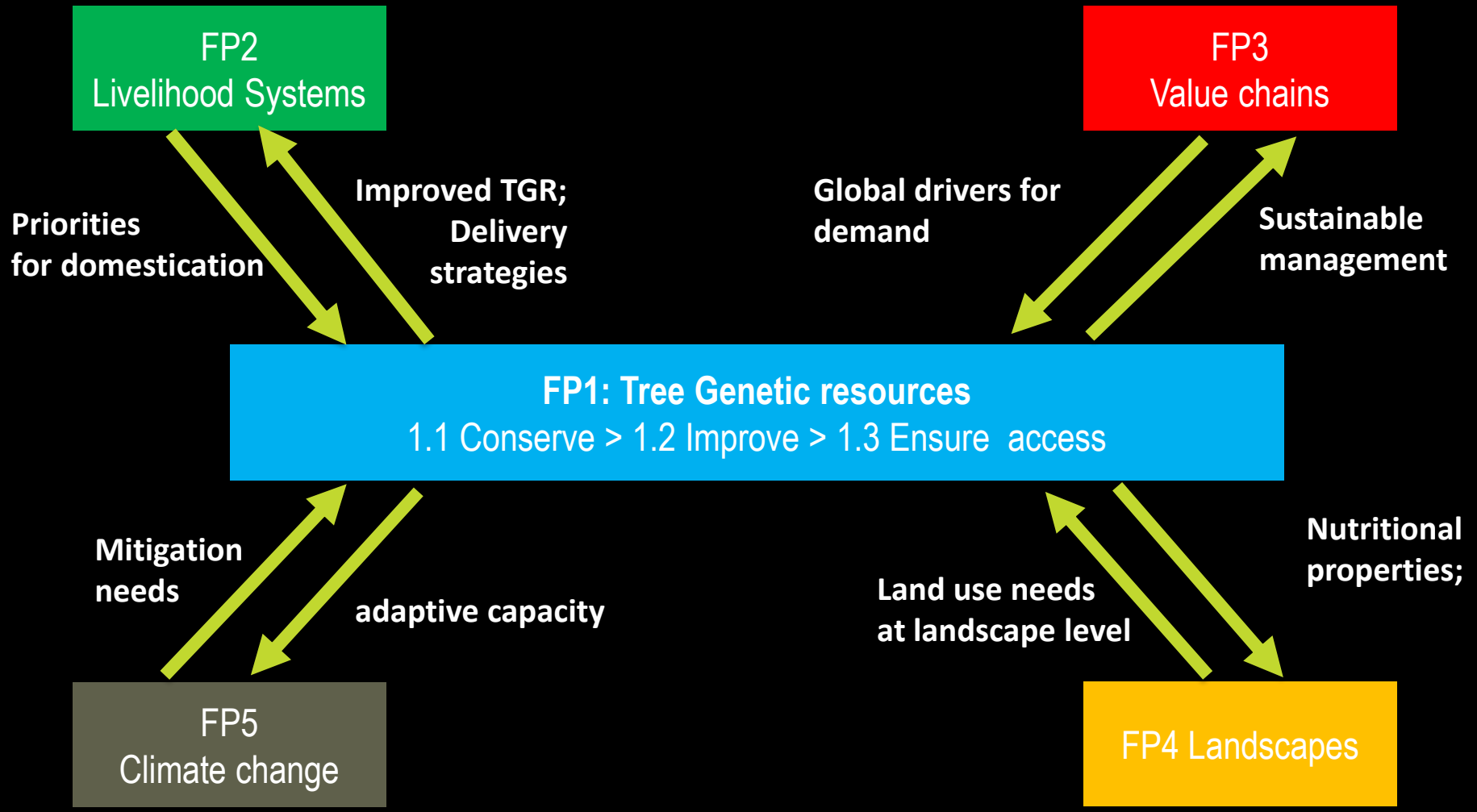
Productive and resilient farms, forests and landscapes

Effective genetic resources conservation and use

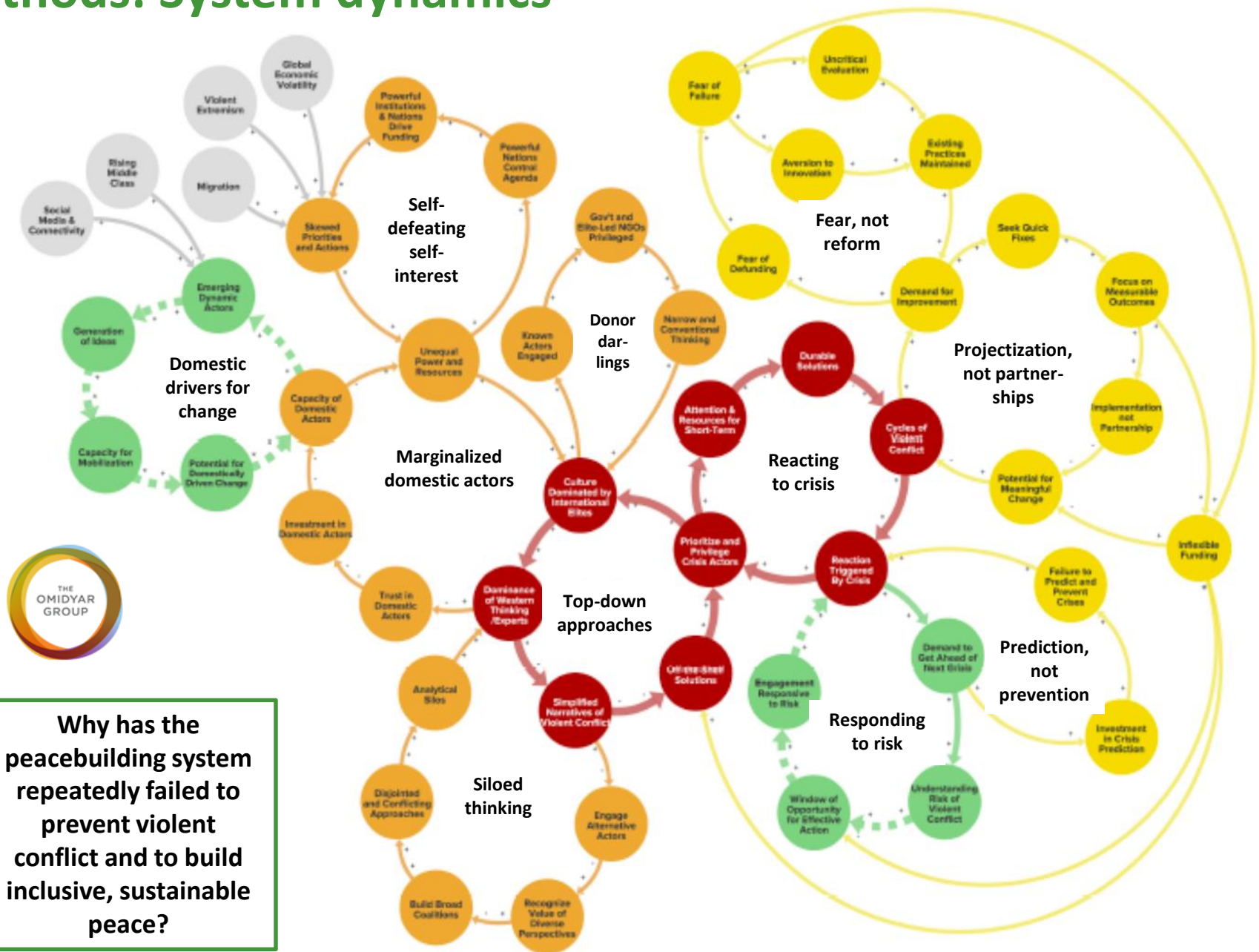
IMPACT
Improved ecosystem, nutrition, income and other livelihood benefits


Climate change integration into broader adaptation agenda
Best species and seed sources for productive and resilient restoration / Tree properties for nutrition
Understanding household decision making on land use change
Improved quality germplasm / Best germplasm delivery strategies
Production in farm-and-forest production systems vs. marketing beyond farm gate
Value-chain-based options for mitigation and zero-deforestation
Global drivers shaping land use
Restoration options / Hydroclimate
FP1 Genetic resources
FP2 Smallholder livelihoods
FP3 Value chains
FP4 Landscapes
FP5 Climate change
Priorities for domestication
Market-driven instruments (labeling, certification, codes of conduct)
Assessment of socioeconomic trade-offs (what works?)
Climate change policies
Contextualizing options for tree integration
Safeguarding biodiversity conservation
Adaptation options for climate change
LEGEND
Information flows
Matter flows (e.g. seed material)
Color corresponds to the respective originating flagship

TGRs and Restoration an integrative theme



Methods: System dynamics

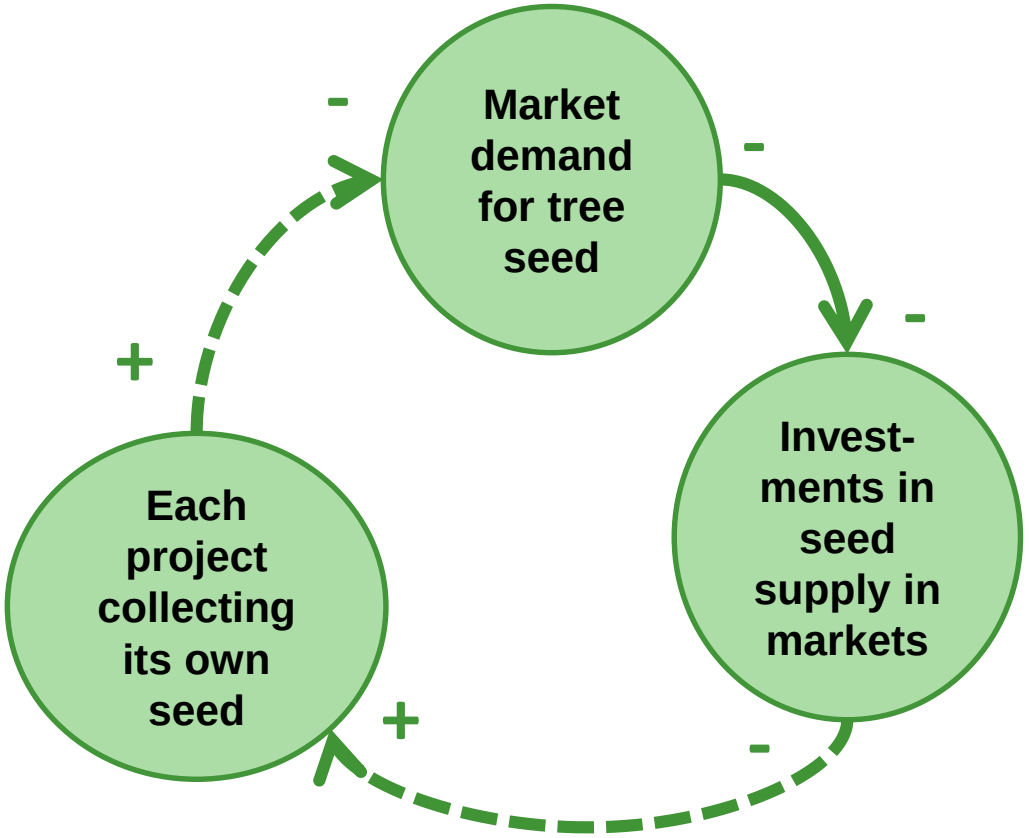


THE OMIDYAR GROUP

Why has the peacebuilding system repeatedly failed to prevent violent conflict and to build inclusive, sustainable peace?

Strategies for achieving change

- Strengthen bright spots
- Weaken or break vicious dynamics
- Shorten time delays for positive impacts
- Help new dynamics or feedbacks develop



Trees for Seeds Initiative

Ensuring successful forest restoration

Degraded land

Right tree seeds
- Genetically diverse
- Locally adapted

Restored land
- Sustainable
- Provides goods and services

Trees for Seeds will:

- Tools to identify tree species which deliver objectives of FLR
- Tools to ensure locally adapted and genetically diverse seed
- Support dynamic Genetic Conservation Units

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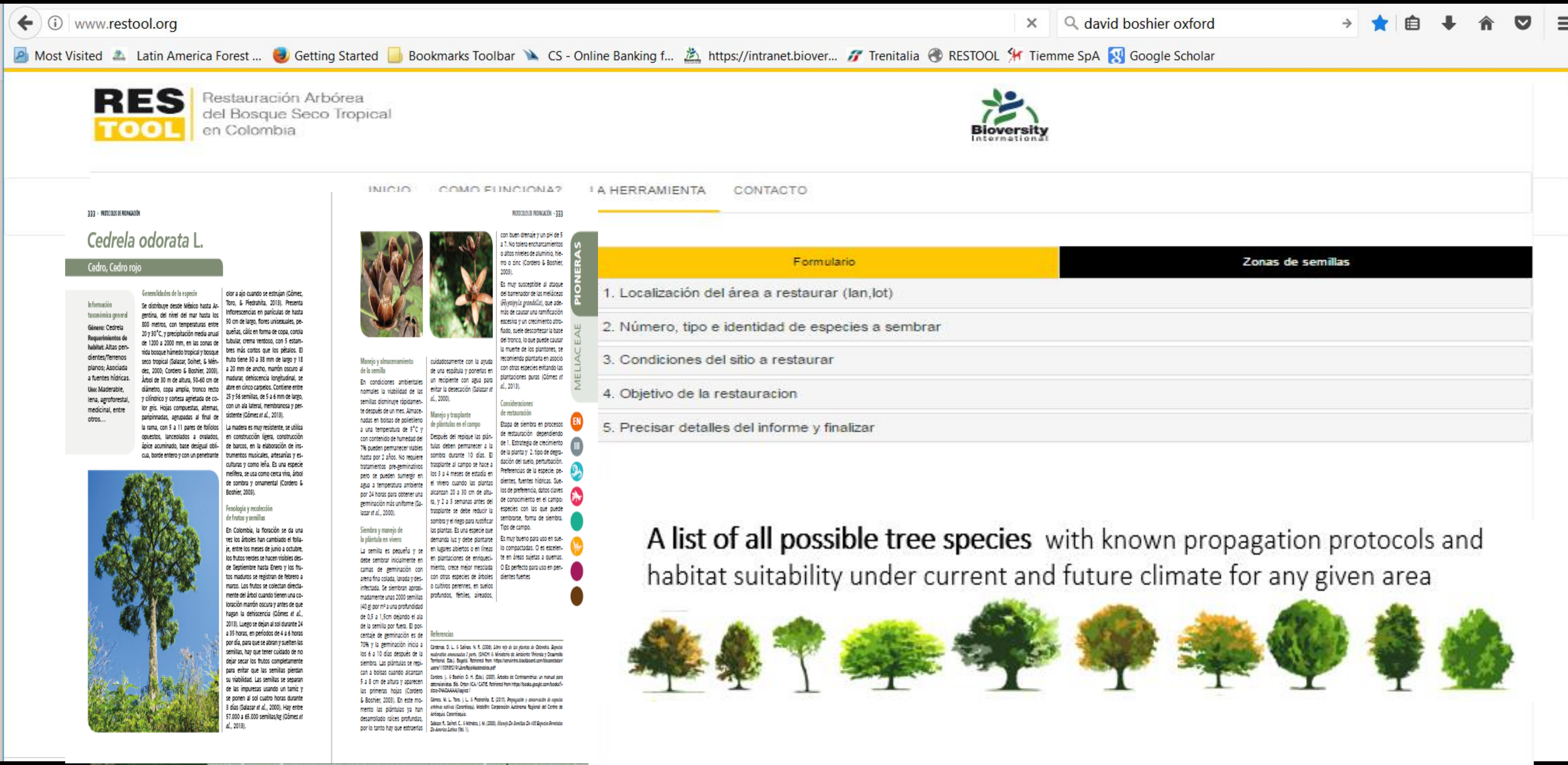
www.ForRestore.org



Mapping threats in Burkina Faso

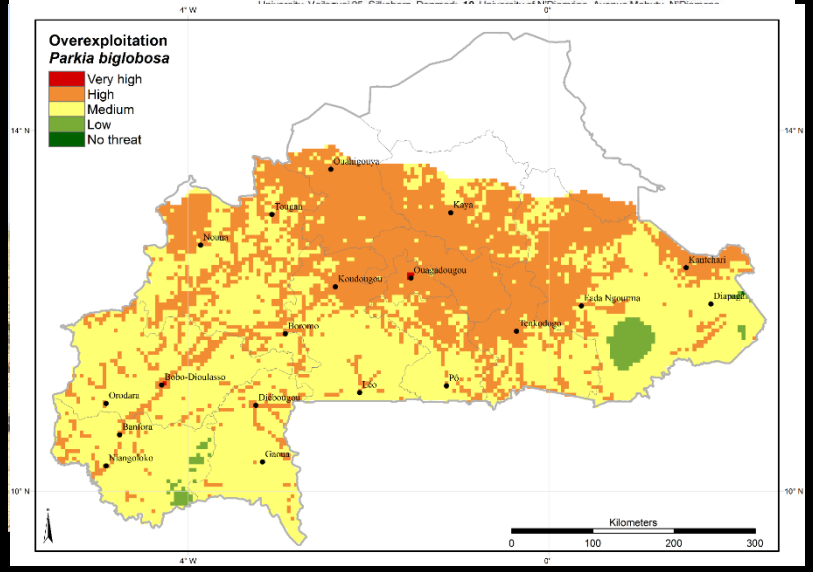
PLOS ONE

RESEARCH ARTICLE

Spatially explicit multi-threat assessment of food tree species in Burkina Faso: A fine-scale approach

Hannes Gaisberger[1]*, Roeland Kindt[2], Judy Loo[1], Marco Schmidt[3], Fidèle Bognounou[4], Sié Sylvestre Da[5], Ousmane Boukary Diallo[6], Souleymane Ganaba[6], Assan Gnoumou[7], Djingdia Lompo[8], Anne Mette Lykke[9], Elisée Mbayngone[10], Blandine Marie Ivette Nacoulma[11], Moussa Ouedraogo[8], Oumarou Ouédraogo[11], Charles Parkouda[12], Stefan Porembski[13], Patrice Savadogo[14], Adjima Thiombiano[11], Guibien Zerbo[8], Barbara Vinceti[1]

1 Bioversity International, Via dei Tre Denari 472/a, Maccarese (Rome), Italy, 2 World Agroforestry Centre (ICRAF), Nairobi, Kenya, 3 Senckenberg Biodiversity and Climate Research Centre, Data and Modelling Centre, Senckenberganlage 25, Frankfurt, Germany, 4 University of Quebec, 2600 Boulevard Laurier, Ville de Québec, QC, Canada, 5 West African Science Service Center on Climate Change and Adapted Land Use (WASCAL), Blvd Mouammar Kadhafi, Ouagadougou, Burkina Faso, 6 Environmental and Agricultural Research Institute, INERA/CNRST, Ouagadougou, Burkina Faso, 7 University Aube Nouvelle, Ouagadougou, Burkina Faso, 8 National Forest Seed Centre, CNSF, Ouagadougou, Burkina Faso, 9 Aarhus

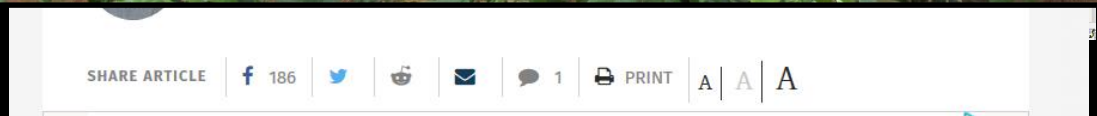


- Sixteen important food tree species

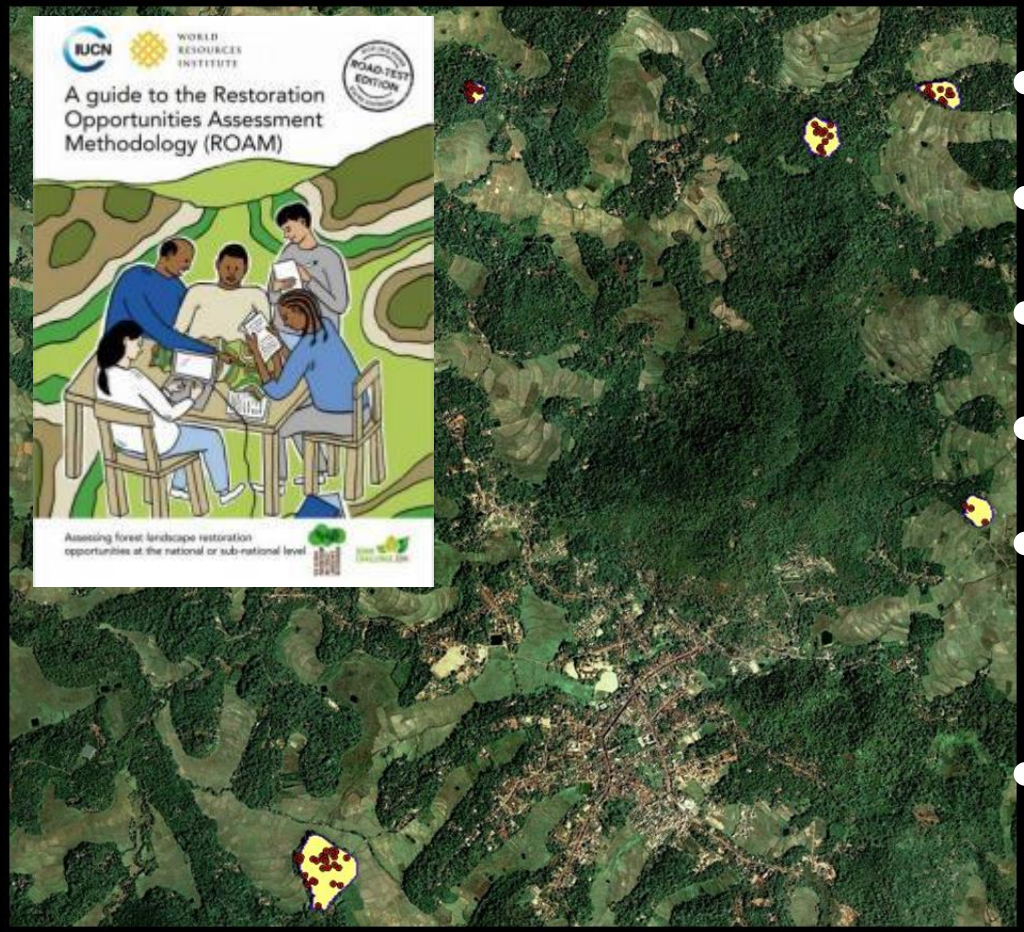
Seed dispersal in a forest mosaic

Ismail et al 2017 New Phytologist

Dysoxylum malabaricum

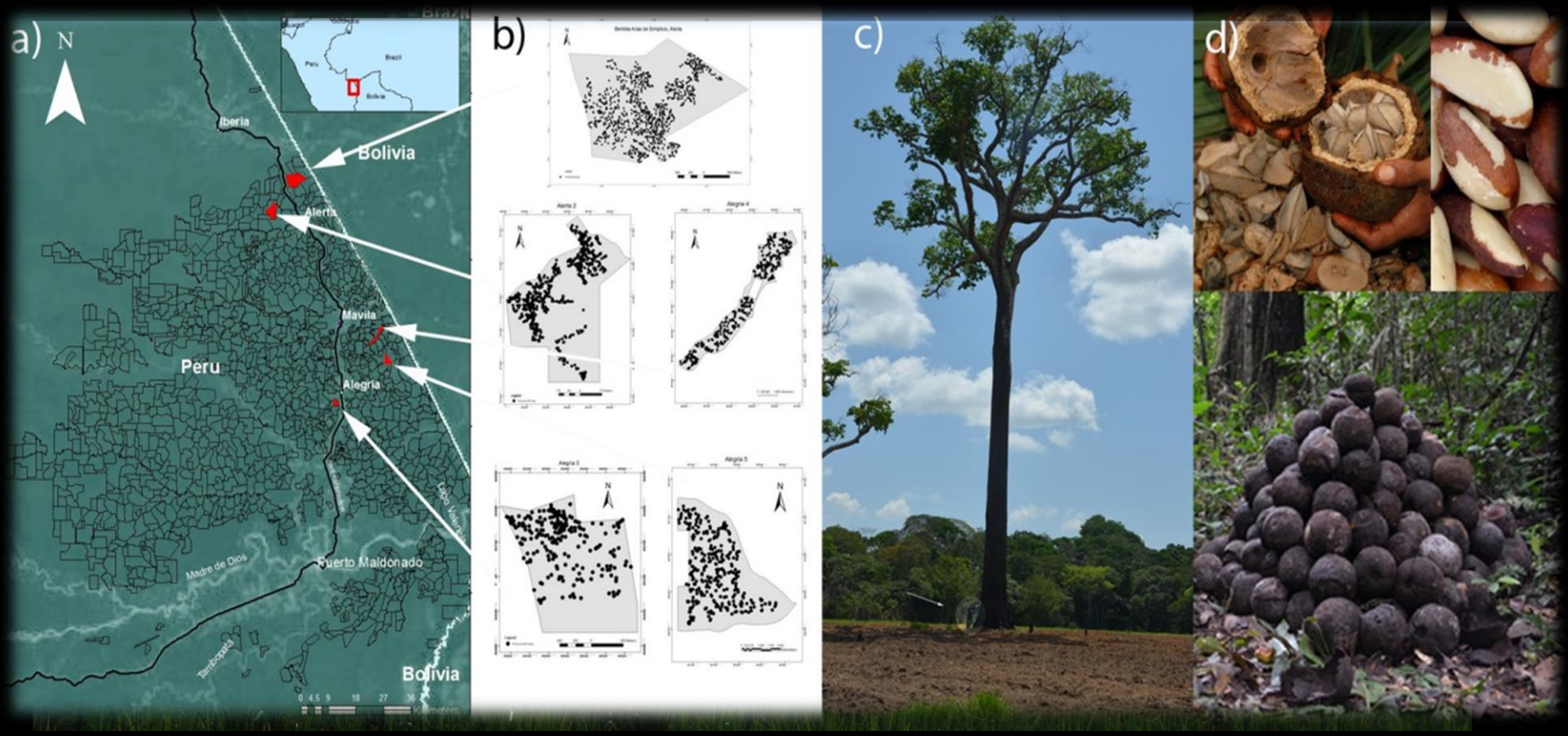


Landscape level integration



- When to plant?
- Where to plant?
- What to plant?
- Who will manage?
- What will be the costs?
- What will be the benefits?

Forest giants in the pasture: Peru



Brazil nut production in Madre de Dios, Peru

Bertholletia excelsa

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SUSTAIN = commerce + business + science

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CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

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THE GLOBAL PARTNERSHIP ON FOREST LANDSCAPE RESTORATION

- Collaboration among partners
- Guiding principles of FLR
- Monitoring and assessment

Summary

- If we don’t consider genetic diversity, we will not achieve resilient forest landscape restoration
- We need tools and Capacity for effective implementation of goals
- We need integrative thinking from FLR to deliver SDGs
- FTA provides a powerful platform

RESTORATION PAVILION PROGRAM

Global Landscapes Forum

THE GLOBAL PARTNERSHIP ON FOREST LANDSCAPE RESTORATION

Wednesday December 20

MONITORING PROGRESS | 9 AM | 50 minute session

Monitoring progress towards the Bonn challenge: where are we?

Leads: FAO, WRI, USFS, ITTO

CAPACITY BUILDING | 10 AM | 1 hour session

- Successes and failures of Adaptive Forest Management (AFM) and Forest Landscape Restoration (FLR), with case studies from Asia and Africa; Lead: IUFRO (30 min)
- SPONGE city Landscape Restoration in Kenya; Lead: RAIN/Aidenvironment (30 min)

FLR & CLIMATE CHANGE | 1 PM | 1 hour session

Discussion about Bonn Challenge & supporting more robust Nationally Determined Contributions (NDCs)

Lead: IUCN

WHY DIVERSITY, WHY NOW? | 2 PM | 1 hour session

Why diversity and why now; seeding resilient restoration. Session on the importance of species and genetic diversity for restoration and providing practical solutions and tools to ensure restoration is climate resilient.

Lead: Bioversity International

FLR & BIODIVERSITY | 3 PM | 1 hour session

Practices and standards: shaping the implementation of restoration commitments for better biodiversity outcomes

Lead: CBD, FSC, SER

bioversityinternational.org/restoration

c.kettle@cigar.org