The Western Ghats Sentinel landscape: a platform to coordinate research efforts

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ATREE Mission

To promote socially just environmental conservation and sustainable development by generating rigorous interdisciplinary knowledge that engages actively with academia, policy makers, practitioners, students and wider public audiences.

GEOGRAPHICAL FOCUS

Biodiversity Hotspots Western Ghats and Eastern Himalayas
Our interlinked objectives

**Generate**
Interdisciplinary knowledge

**Educate**
key leadership groups

**Engage**
the state, society, industry and media
How are we organized?

Suri Sehgal Centre for Biodiversity and Conservation

Centre for Environment and Development

The Academy for Conservation Science and Sustainability Studies

Cross-cutting themes

- Climate Change
- Governance
Sentinel landscape

Partners

World Agroforestry Centre
TRANSFORMING LIVES AND LANDSCAPES

ciras

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

Sentinel Landscapes – Ouaga 2013

14
May 3, 2013
Length = 1,600 km
Average width = 100 km
Highest peak = 2,695
Area = 1,60,000 sq km
Protected area = 17,000 sq km
Plant species = 4,780 (46% endemic)
Rainfall = 2,500 mm
58 protected area
14 National parks
44 Wildlife sanctuaries
Sentinel Landscape

- Functional corridors for wildlife conservation
- Biodiversity hotspot
- Junction between eastern and western ghats
- Change in management status
- Change in agricultural and forest landscape
- Long-term monitoring data
CRP6 Integration

National Parks, Wildlife Sanctuaries
Logged over Reserved Forests
Sacred Forests, Forest Fragments
Shade Coffee, Home Gardens

Intensive Coffee Cultivation, Tea Estates, Rice paddies
The Biligiri Ranga Swamy Temple Wildlife Sanctuary in Karnataka, India

- Home to an indigenous group of people, the Soligas.
- Area is about 540 km².
- Junction between Western and Eastern Ghats.
- Includes about 1000 species of higher plants, 26 species of mammals, 215 species of birds, and at least 116 species of butterflies.
FOREST CORE
FOREST BUFFER
“INTERACTIVE EDGE”
FOREST-AGRICULTURE ECOTONE
FOREST-FRINGE AGRICULTURE
MAINSTREAM AGRICULTURE

River systems

Dispersers
Pollinators
Forest-Agriculture Ecotones

- Small land holdings 1-2 acres
- Agriculture is adapted to the subsistence needs
- Human-animal conflicts
- Soil and water loss
- Erosion of traditional knowledge
• Shifting-agriculture before 1972
• Settled agriculture after 1972
• Tiger reserve status in 2011
Crop and seed diversity
Diversity of Amaranthus and traditional sweets
Native Bananas

10 varieties of Banana

Vegetable Garden
# Seed conservation

<table>
<thead>
<tr>
<th>Name</th>
<th>Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finger millets</td>
<td>27</td>
</tr>
<tr>
<td>Beans</td>
<td>56</td>
</tr>
<tr>
<td>Maize</td>
<td>5</td>
</tr>
<tr>
<td>Caster</td>
<td>7</td>
</tr>
<tr>
<td>Pumpkin</td>
<td>6</td>
</tr>
<tr>
<td>Chilly</td>
<td>6</td>
</tr>
</tbody>
</table>

Total seed diversity recorded 157
Change in Agriculture System:

Most of the farmers started growing shade-coffee at high altitude.

Native crop diversity is being decreased.
Drivers of forest change

**FIRE**: the control rather than the use

Lantana: increase in and therefore changing forest composition
Rapid spread of lantana 1997-2008

<table>
<thead>
<tr>
<th></th>
<th>1997</th>
<th>2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-lantana stems</td>
<td>9989 (95.7%)</td>
<td>6213 (66.2%)</td>
</tr>
<tr>
<td>Lantana stems</td>
<td>451 (4.3%)</td>
<td>3160 (33.7%)</td>
</tr>
</tbody>
</table>
Tribal Forest Rights Act 2006

Main objectives
– Correction of historical injustice
– Secure livelihoods and cultures
• Empowerment to protect habitat against destructive forces
• Gram sabha responsibilities to protect wildlife and forests.
Sacred sites

BILIGIRI RANGASWAMY TEMPLE WILDLIFE SANCTUARY
Home of the Soligas

Soligas have lived, farmed, and used the forests of Coorg and Kodagu district for centuries. Their history of residence and forest use has resulted in a landscape that is today valued for its rich biodiversity.

Over time Soligas have marked a sacred landscape consisting of cairns, roads of stones, and associated cultural shrines called amlis. Each Soliga family has several amlis belonging to their sick groups. There are over four hundred sacred sites, known as amlis, and the Soligas believe in the connection of their ancestors with these places.

The accompanying map shows the extent of 447 amlis and the location of sacred sites within the BRWS.

400 sacred sites
Institutional Mapping in the WGSL site
Contribution from the AgroParisTech-ATREE team

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AgroParisTech
Sentinel Landscapes Workshop, Costa Rica — 3/3 to 8/3
A twofold approach to Institutional mapping

- Mapping institutions to understand landscape dynamics
  - Identifying institutions — involved in forest resources uses and management.
  - Describing the processes through which actors "play" with those rules
- Two main types of data
  - Data derived from the IFRI approach at the village level
    - Rules in use
    - Types of forest resources used
    - User groups and possible conflicts between them
Over the past 30 years: Coffee cultivation has doubled, while forest area has reduced by 30%
Coorg: the importance of the coffee sector

- An analysis conducted over the past 4 years, results to be presented in June 2014.
- 161 interviews carried out with various actors
Chamarajanagar: the implementation of the FRA, main driver of landscape changes?

- 52% of the district is covered by protected areas and other areas being agricultural lands
- Several tribes live in these forests and claim for land rights
- The impact of the Forest Rights Act, 2006
  It gives them rights: over forest land and forest products...
- An overall question: How does the implementation of the FRA affect landscape changes in the Chamarajanagar district?
Thank you