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SDG 15: Halt biodiversity loss



disturbed ground due to the burrowing activities of the South African giant earthworm (*Microchaetus rappi*)





45 t/ha living material in temperate grassland soil



European
Commission

Photo credit Roger Kldd
modified by Alan Belward



Joint
Research
Centre



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Commission

Photo credit Roger Kidd Jim Champion
modified by Alan Belward
stats Karl Ritz



5 t/ha living material in arable soil

Joint
Research
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Commission

Photo credit Roger Kidd, Jim Champion
modified by Alan Belward



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Aichi target 5: Halve the rate of loss of natural habitats, including forests

Aichi target 11: Protect 17% of terrestrial and 10% of marine and coastal areas



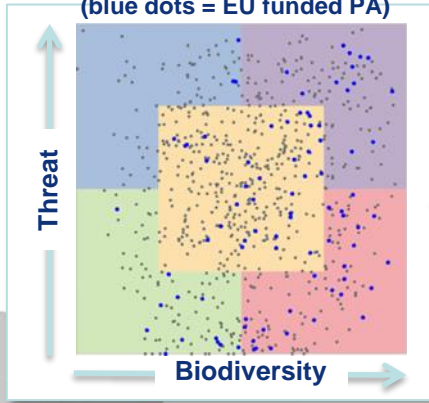
Digital Observatory for Protected Areas



European Commission

http://dopa-explorer.jrc.ec.europa.eu/dopa_explorer/

Risk/value for African Protected Areas
(blue dots = EU funded PA)

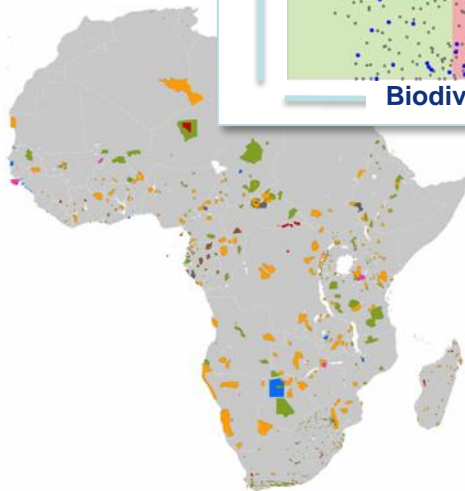


Monitoring Scenarios Forecasts



Provide Web Processing Services

Integrate datasets

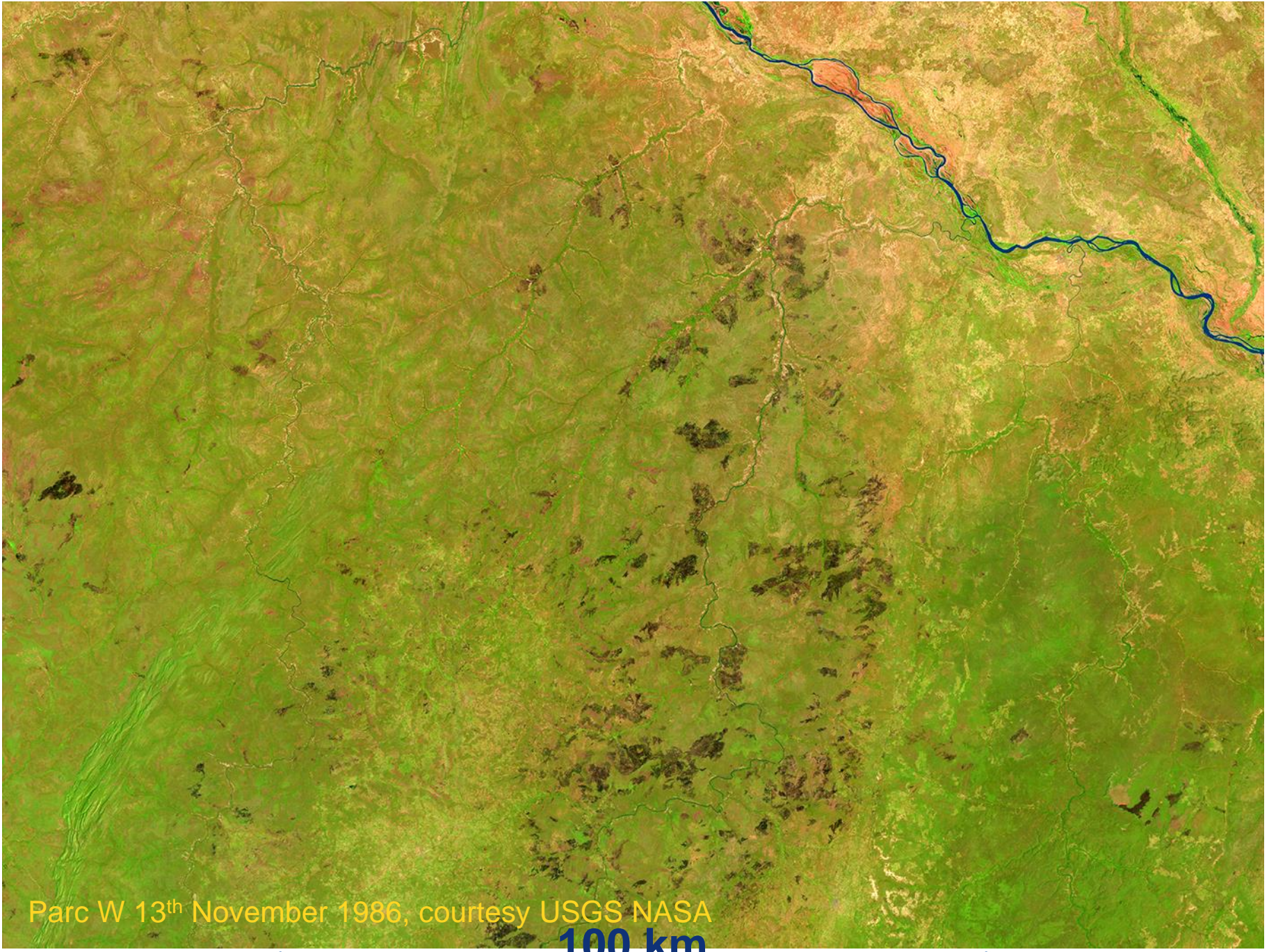


Protected Areas (PA)

Ecosystems

Species

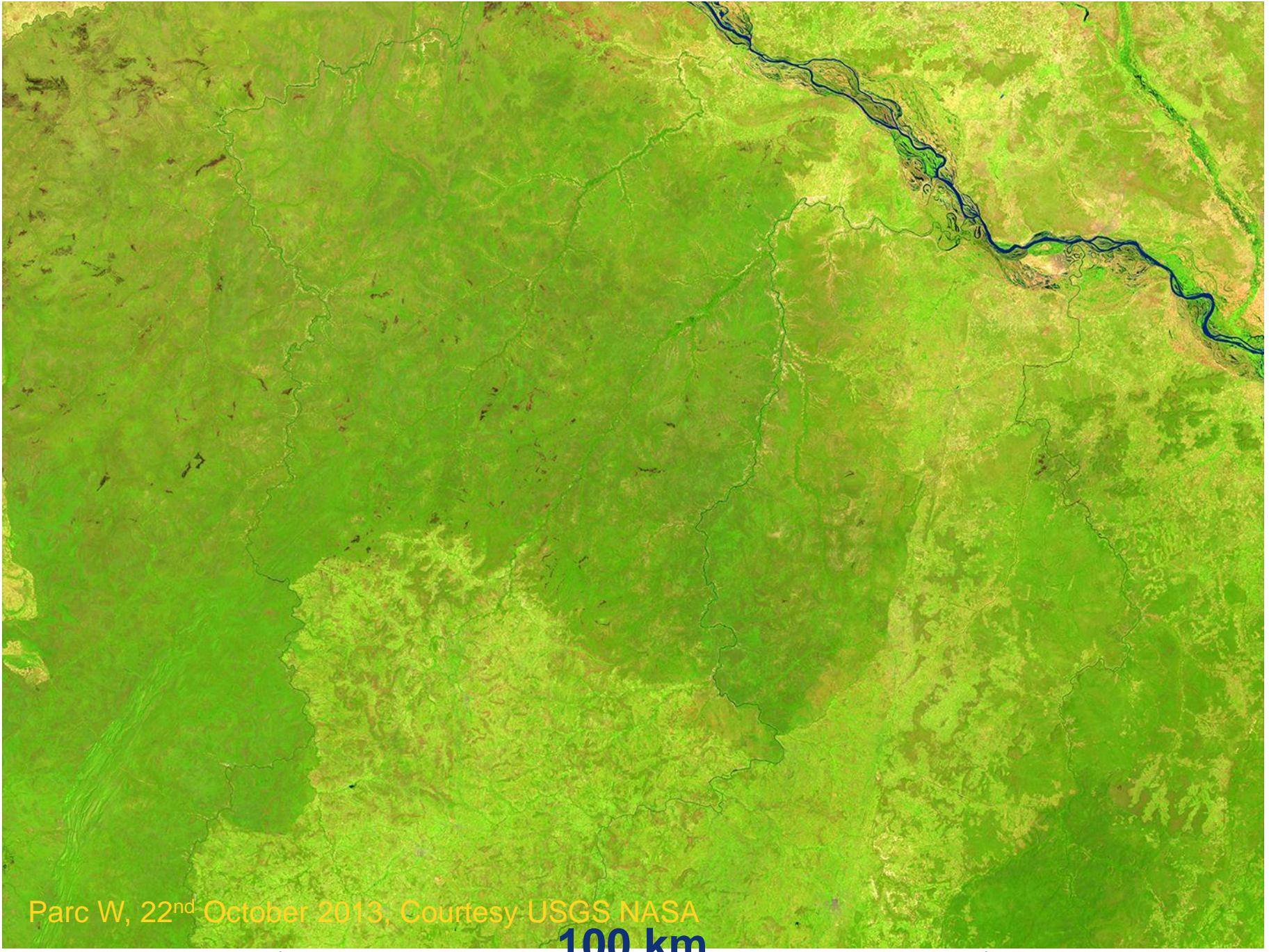




Parc W 13th November 1986, courtesy USGS NASA

100 km





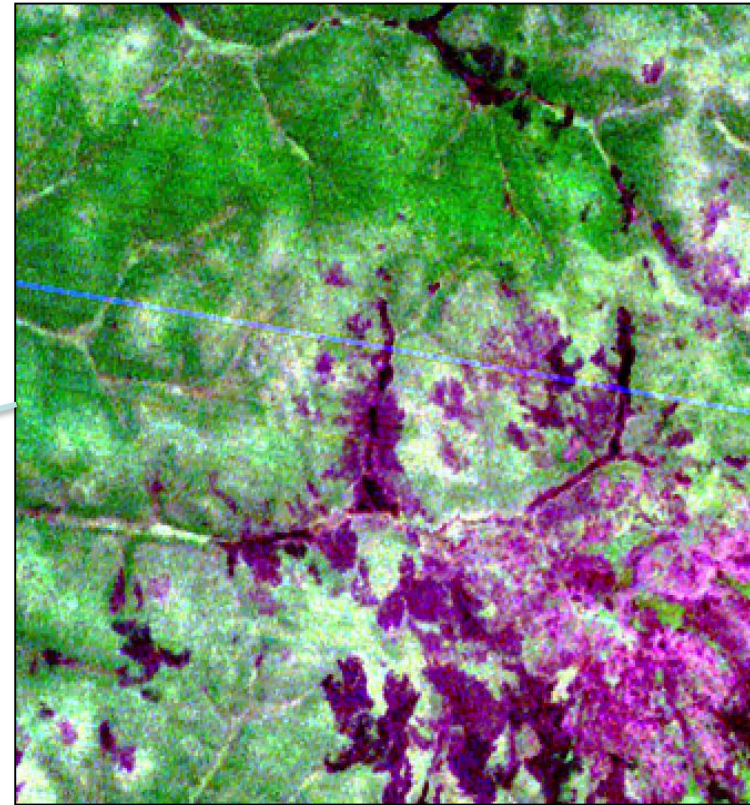
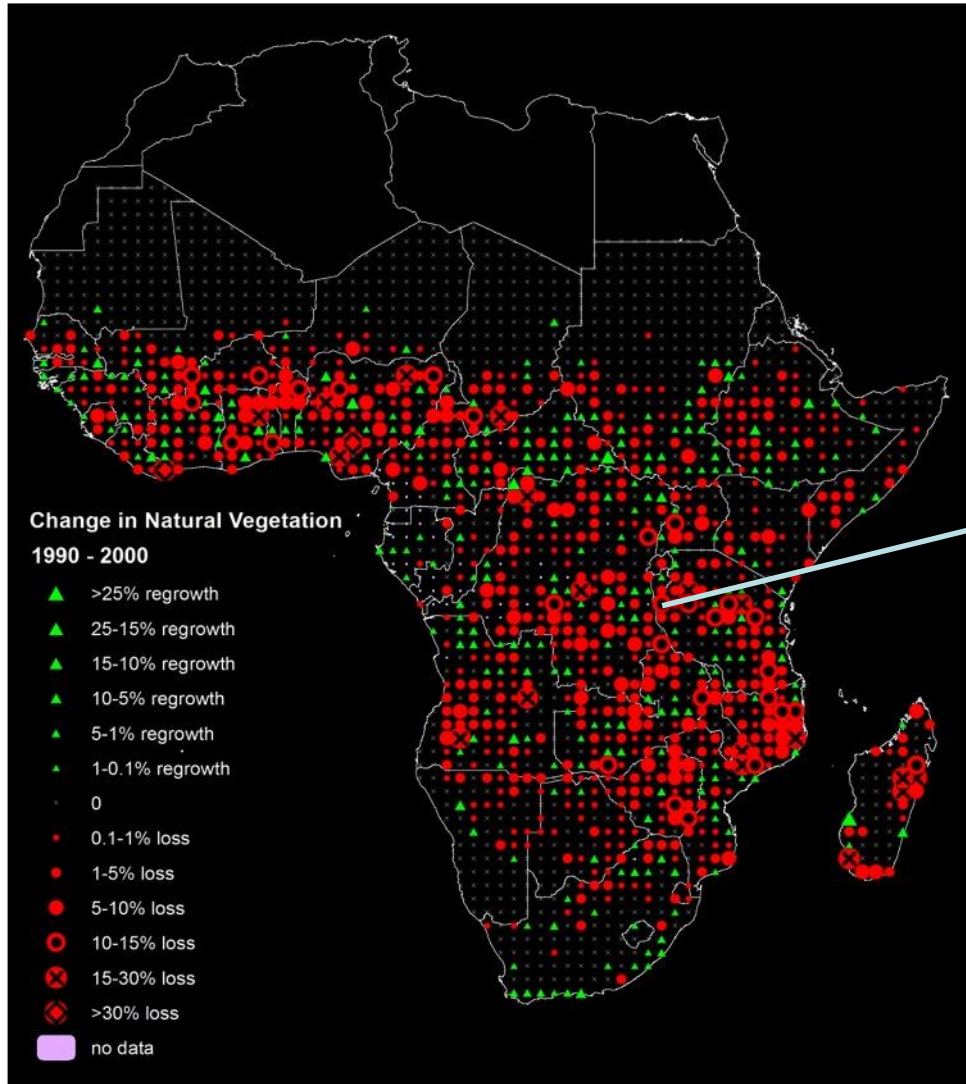
Parc W, 22nd October 2013, Courtesy USGS NASA

100 km



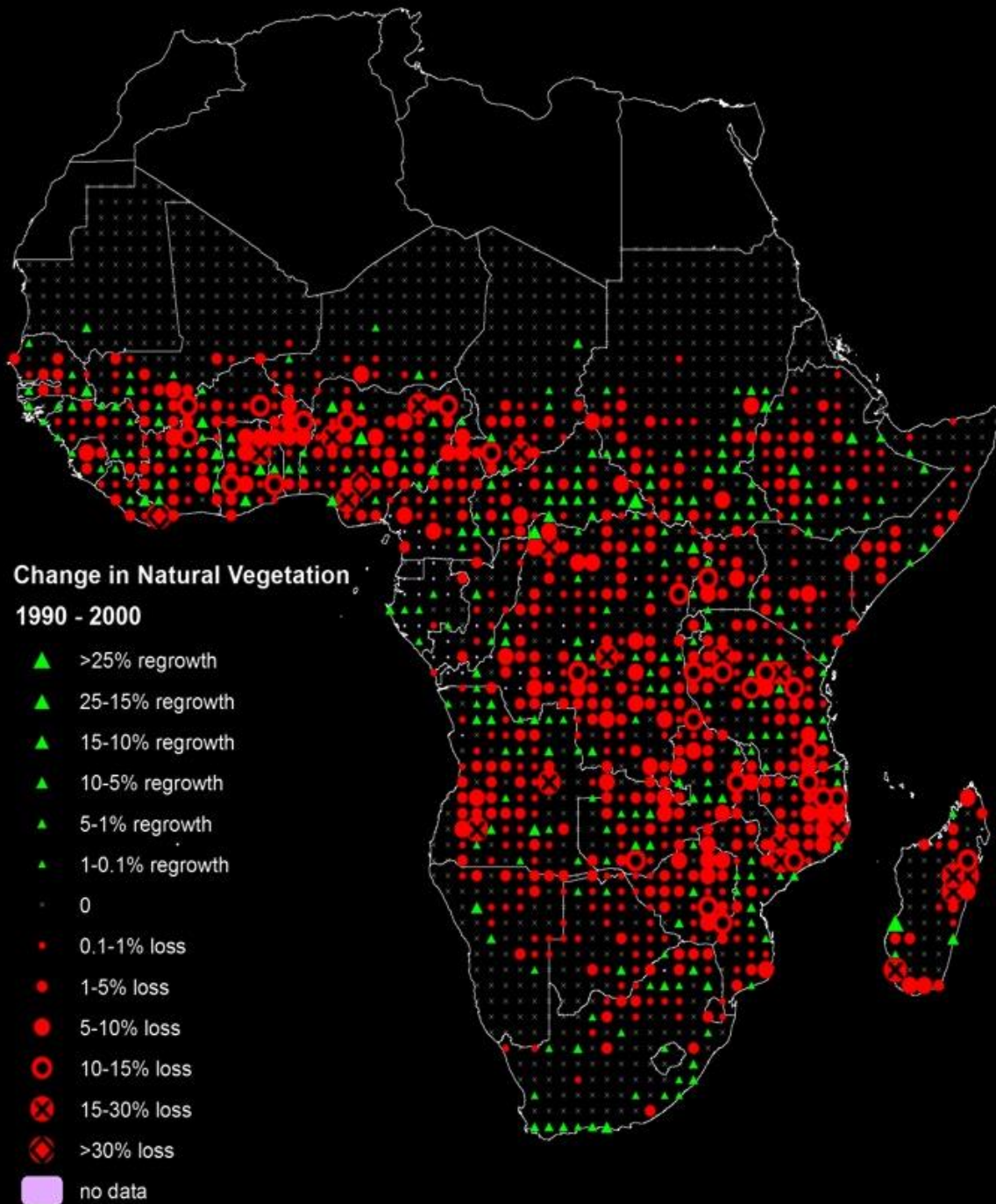


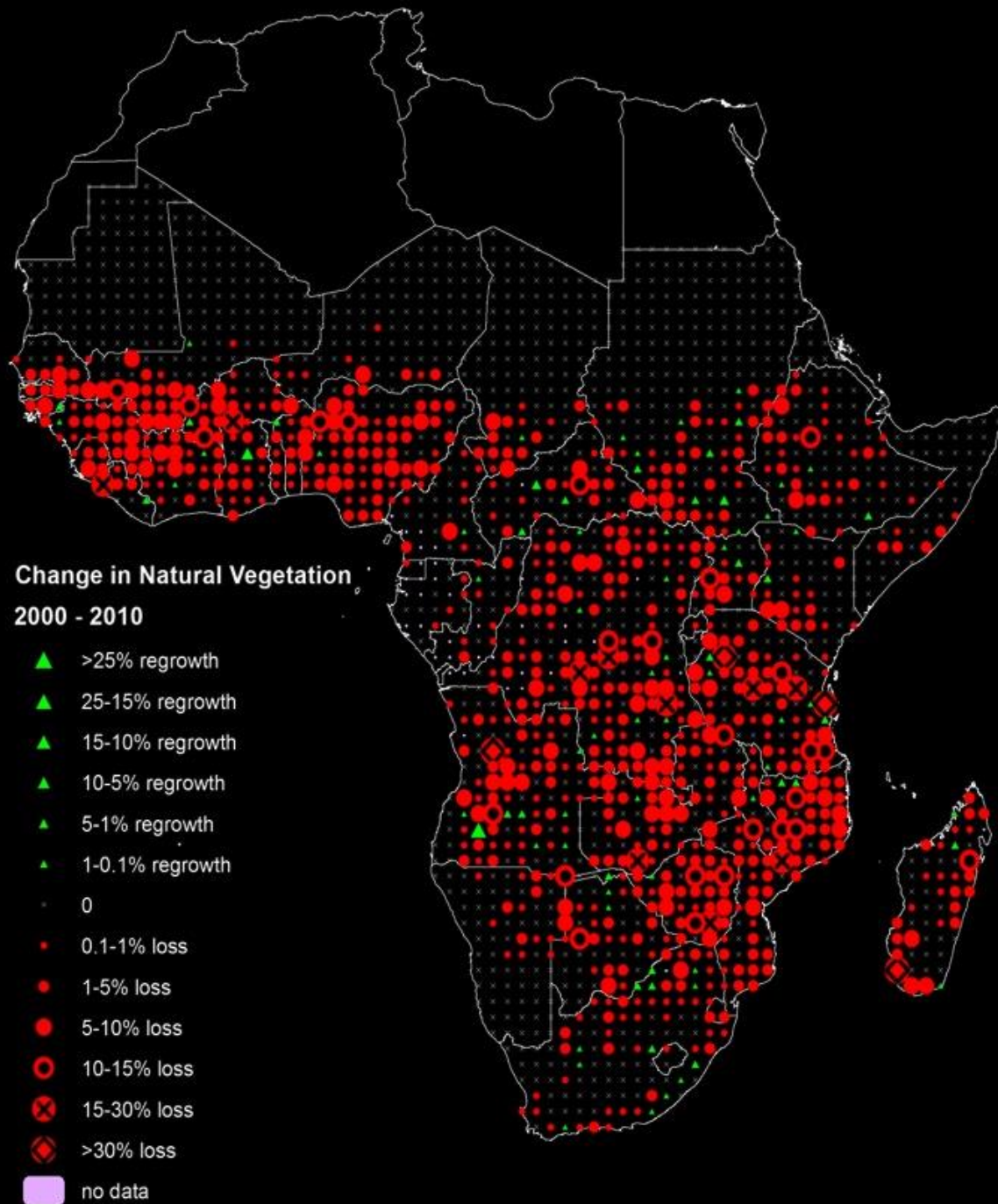
European
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4S, 32E

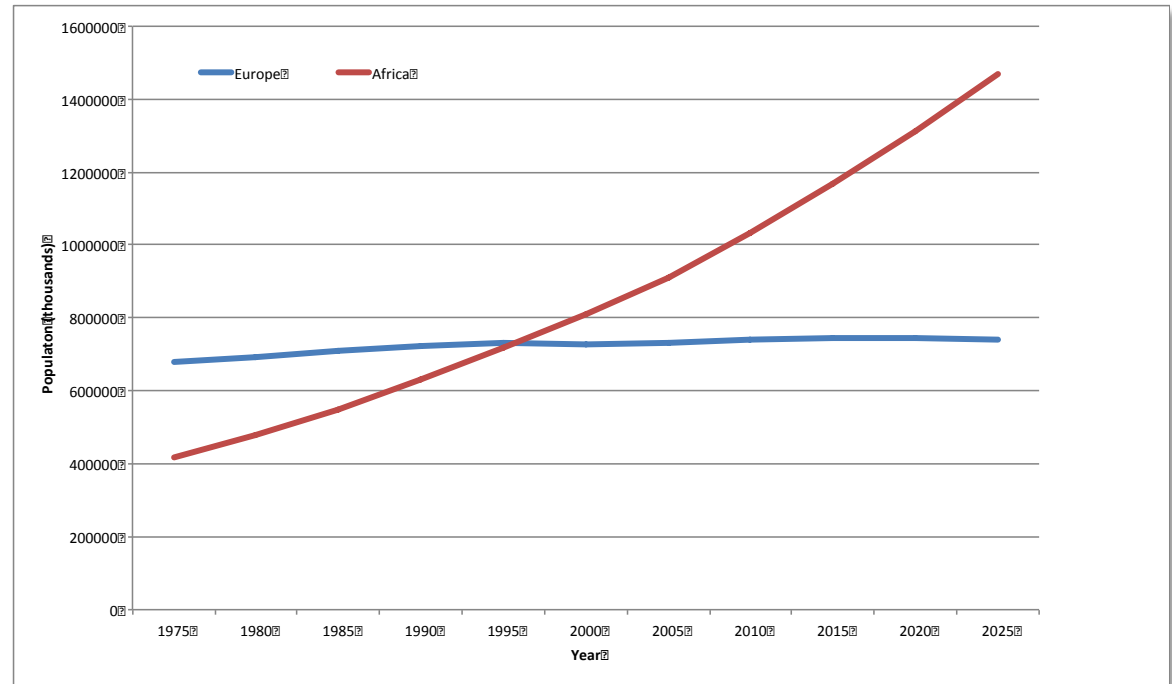
2045 sample sites. Source: A. Brink et al. JRC.
Landsat courtesy USGS/NASA





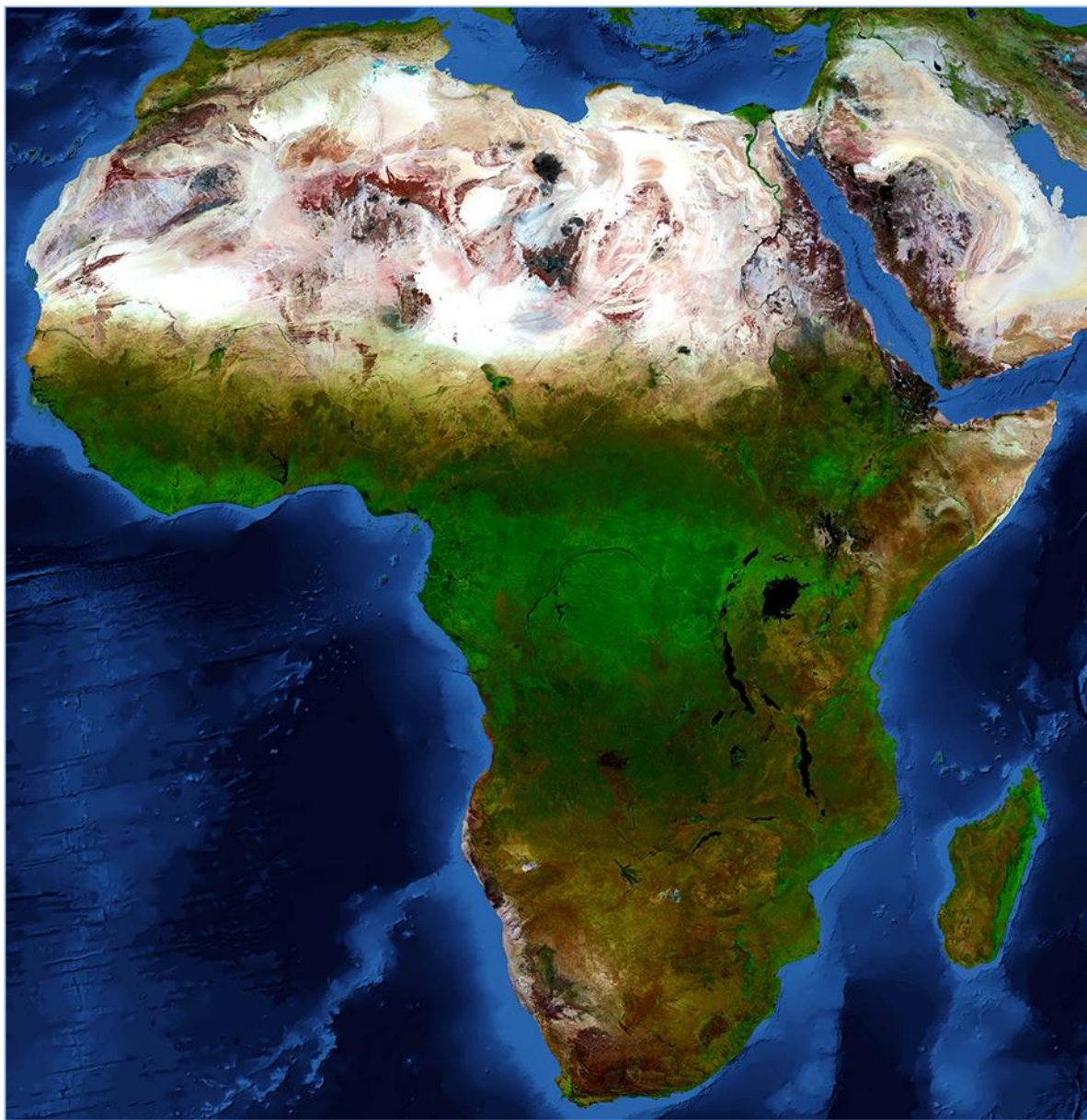
Africa will experience a more than tenfold increase in population 1950 - 2050

- 25% less agricultural land/person than 1975 ... today
- Increasing pressure on traditional land use
- Land-use choices are increasingly complex
- Land grab resurfaces
- Emerging markets (internal and external)
- More skilled people (but, more people)
- Urban living challenges grow
- Conflict and migration

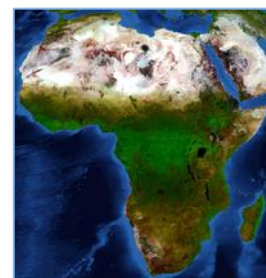


Source: Population Division of the Department of Economic and Social Affairs of the United Nations Secretariat (2012). World Population Prospects, the 2012 Revision
Population Prospects: The 2012 Revision, New York: United Nations.

Change in total land availability 1950 - 2050 (ha / per person)



1950
13.2 ha



2010
2.93 ha



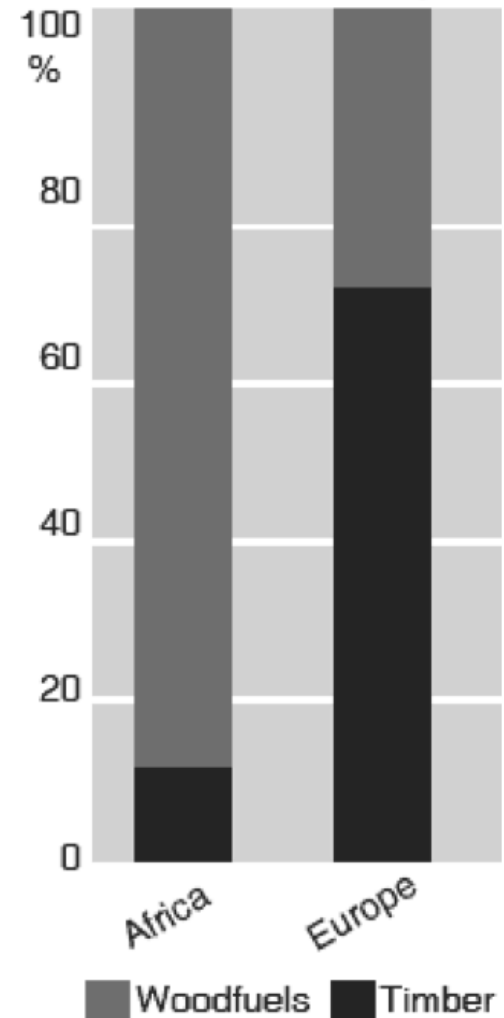
2050
1.26 ha

Woodfuel consumption far outweighs timber consumption in sub-Saharan Africa

Fuelwood meets over 85% of rural energy demands

Charcoal meets most of the gap and 95%+ urban demand... Use in rural areas is growing too

Woodfuel versus timber consumption



Source: FAO's Wood Energy Information System

Wood fuel production per country for 2010

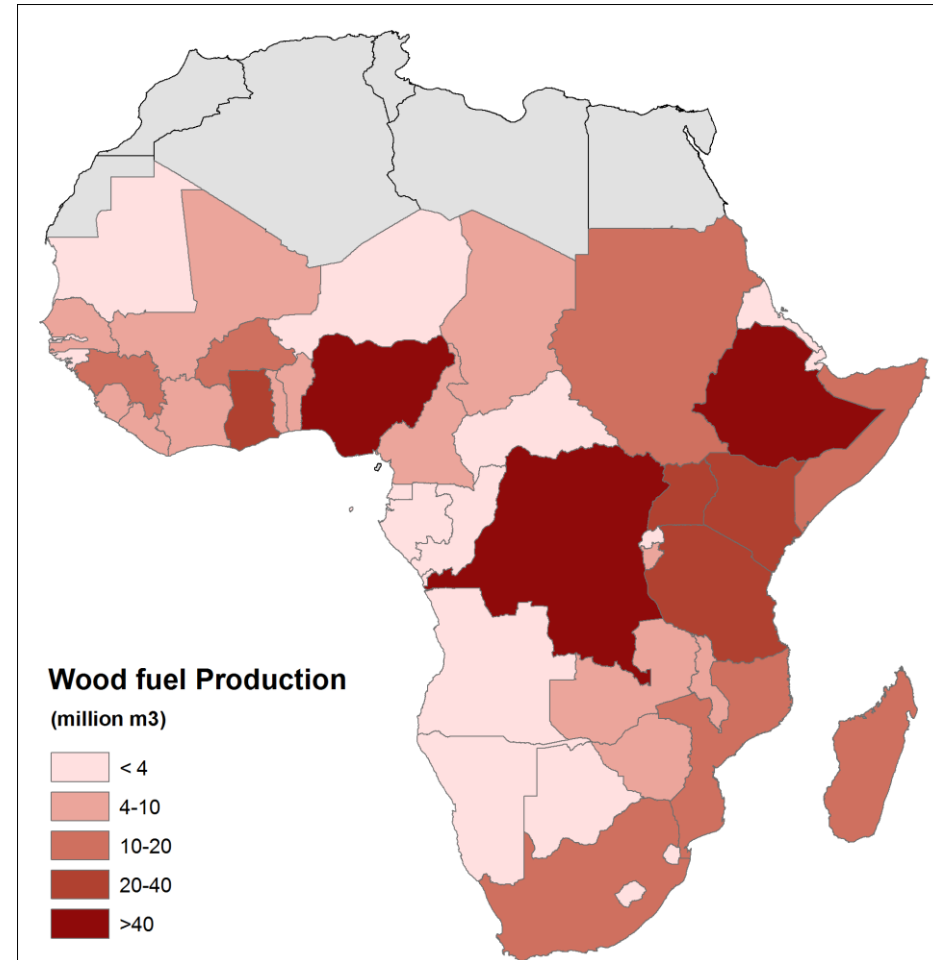
Africa produces 600m m³ of wood fuel/yr

- 60% to 85% of energy

EU produces 90m m³ of wood fuel/yr

- 1% to 18% of energy

Efficiency of use between EU and Africa contrasts, sustainable patterns of production contrast dramatically



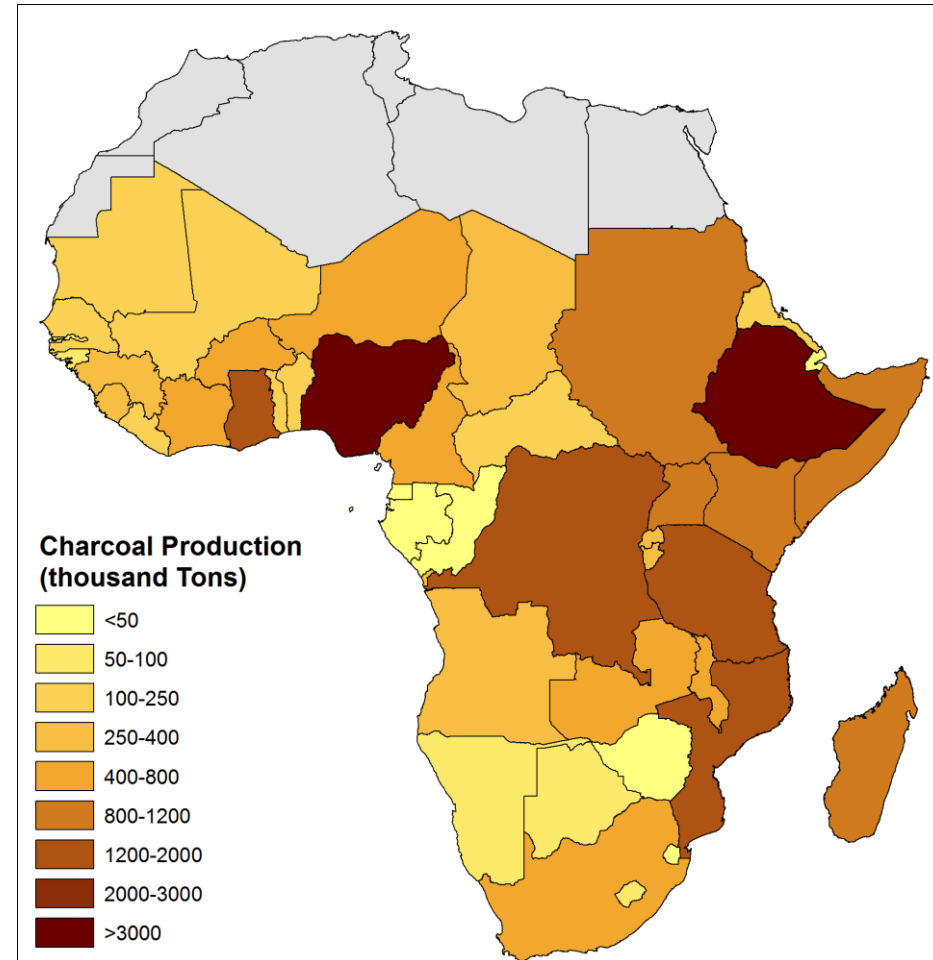
Source P. Mayaux JRC from FAO statistics

Charcoal production per country for 2010

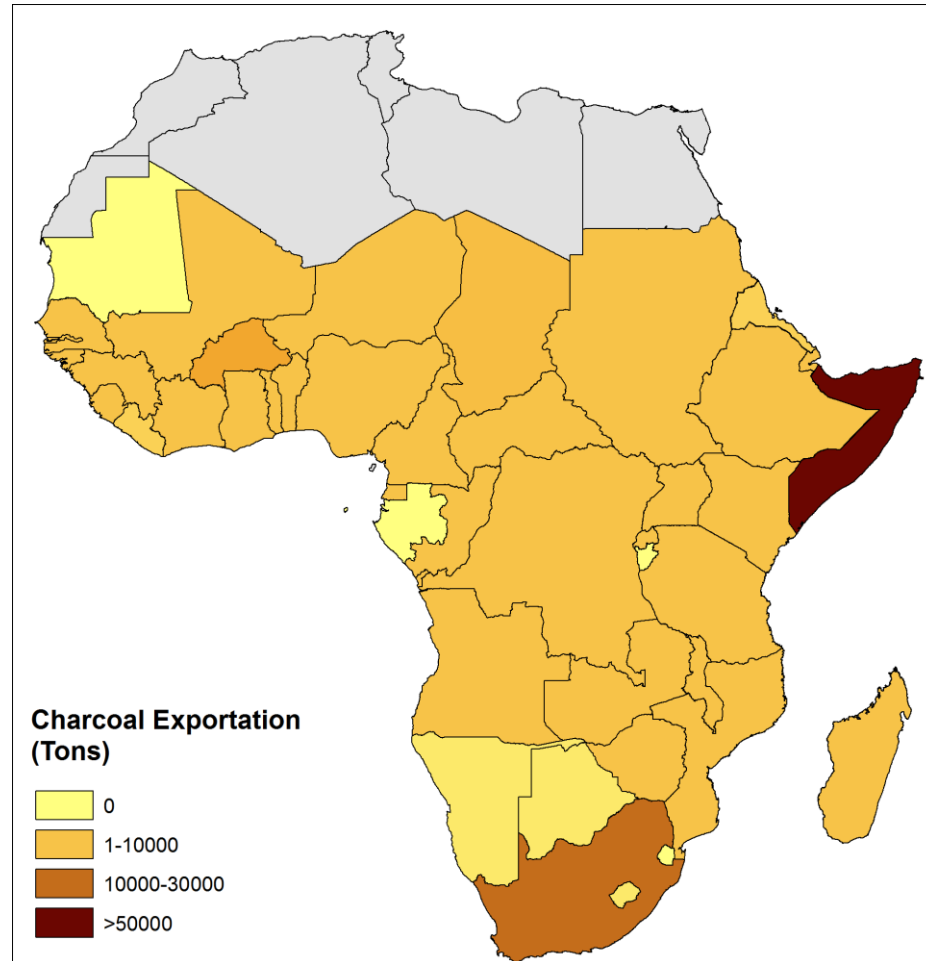
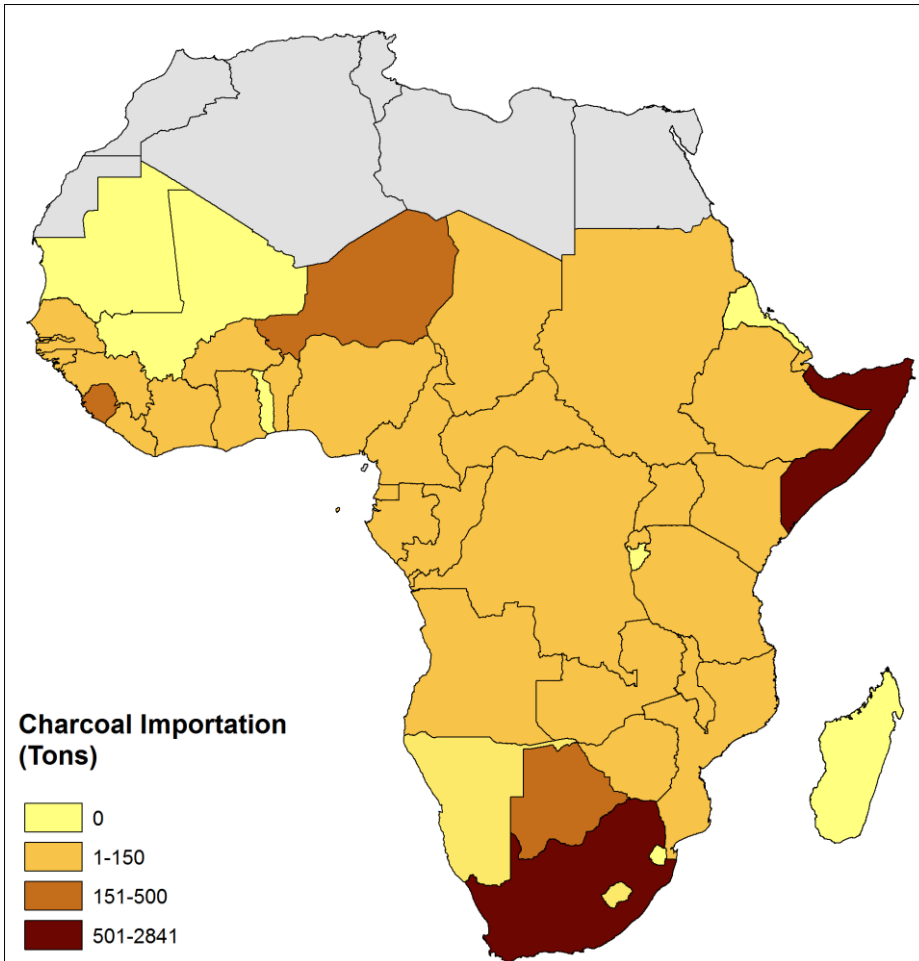
Africa produces over 29 m tons of charcoal / year

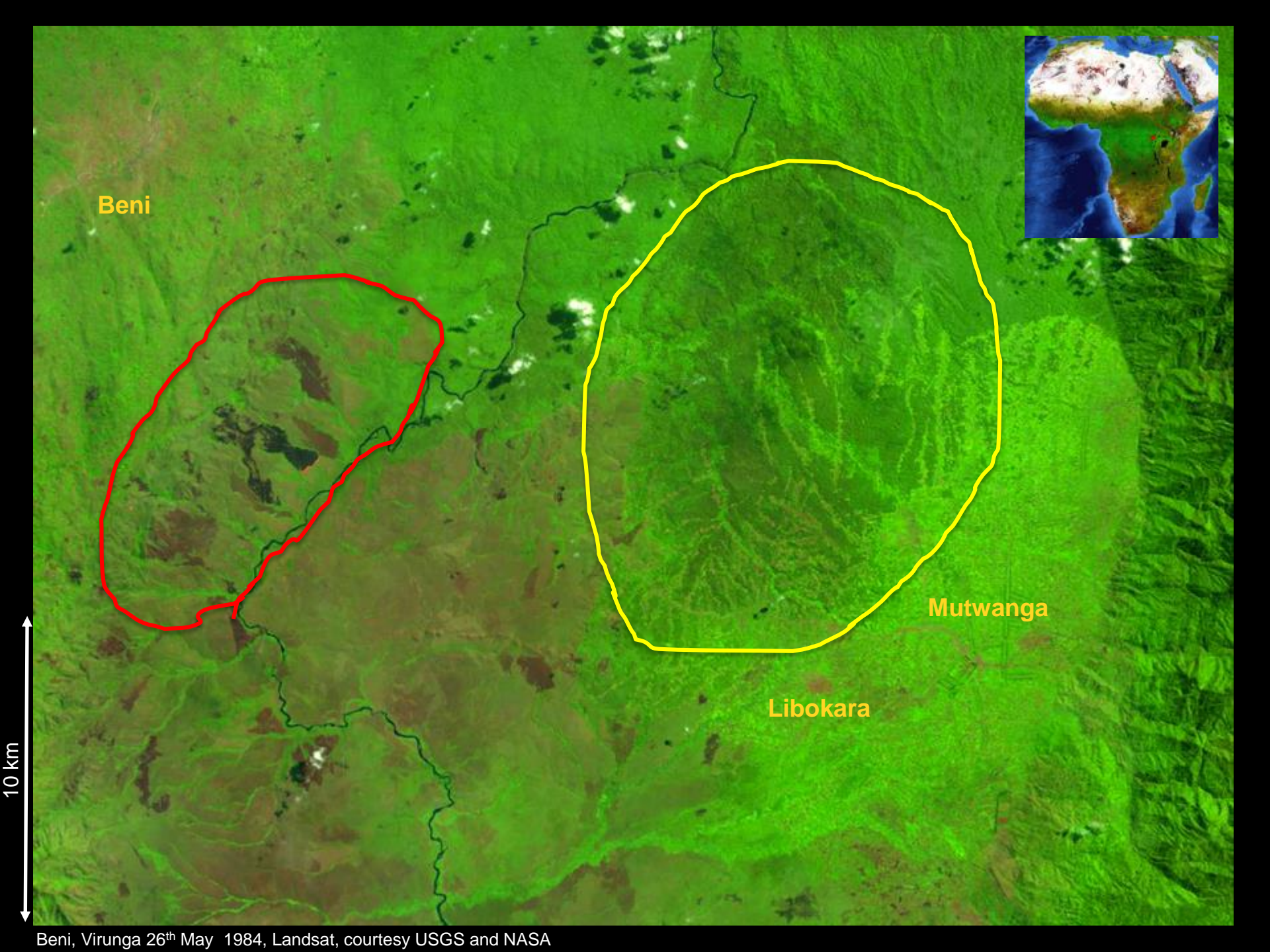
- undeclared production may far exceed this figure

High production levels in Nigeria and Ethiopia primarily satisfy internal needs – especially highly urbanized Nigeria



More than US\$ 1 billion / yr licit charcoal trade – illicit trade figures are unavailable





Beni

Mutwanga

Libokara

10 km

Beni, Virunga 26th May 1984, Landsat, courtesy USGS and NASA



Beni, Virunga 5th January 2014, Landsat, courtesy USGS and NASA



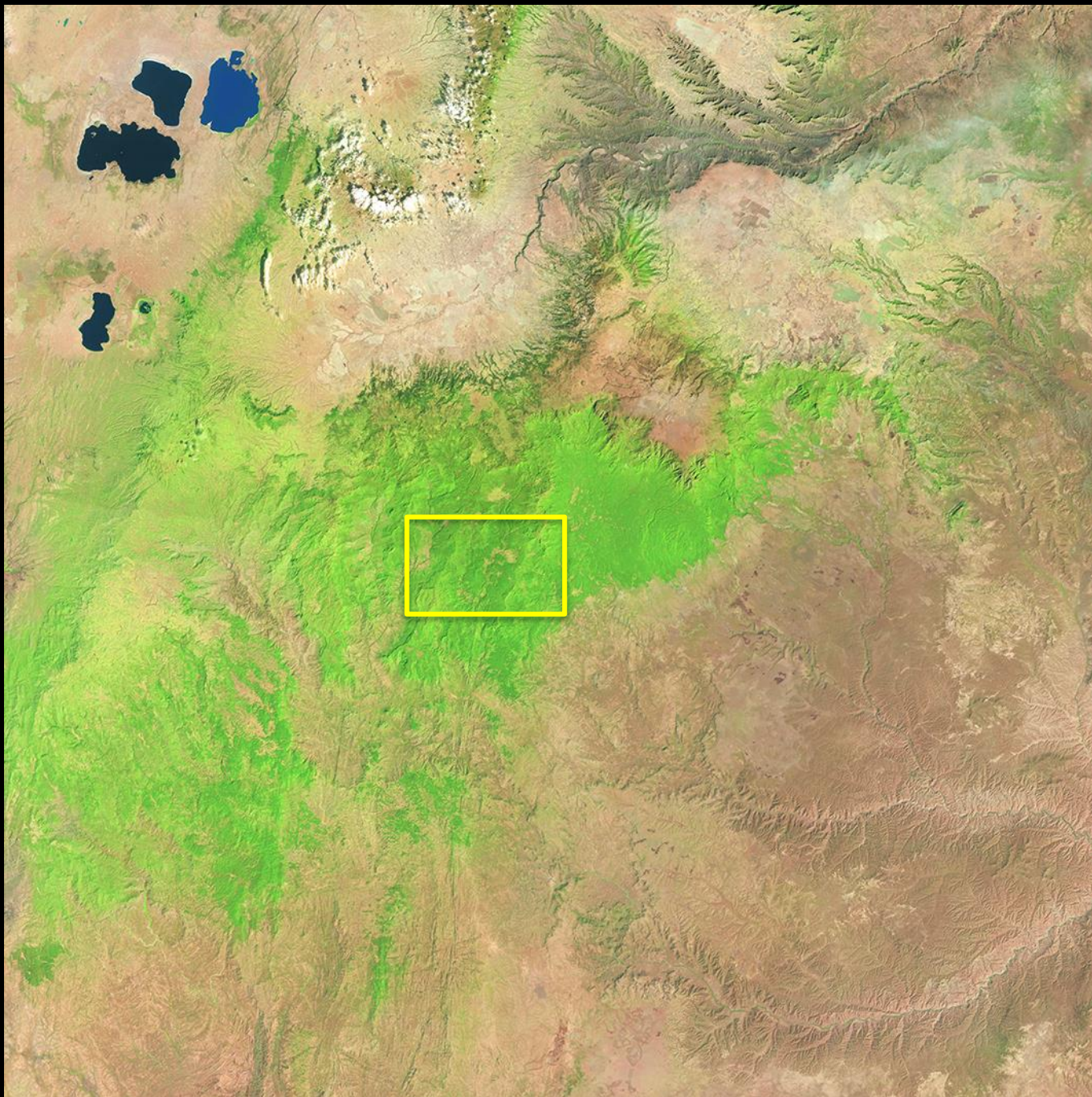
**13 million people
Ethiopian part**

**2.5 million people
Kenya's part**

**4.9 million people
Somalia's part**

Forests of the
Bale Mountains

Juba - Shabelle
Water Towers



Landsat 1986
courtesy
USGS/NASA



Harrena Forest, Ethiopia January 1986, Landsat, courtesy USGS and NASA

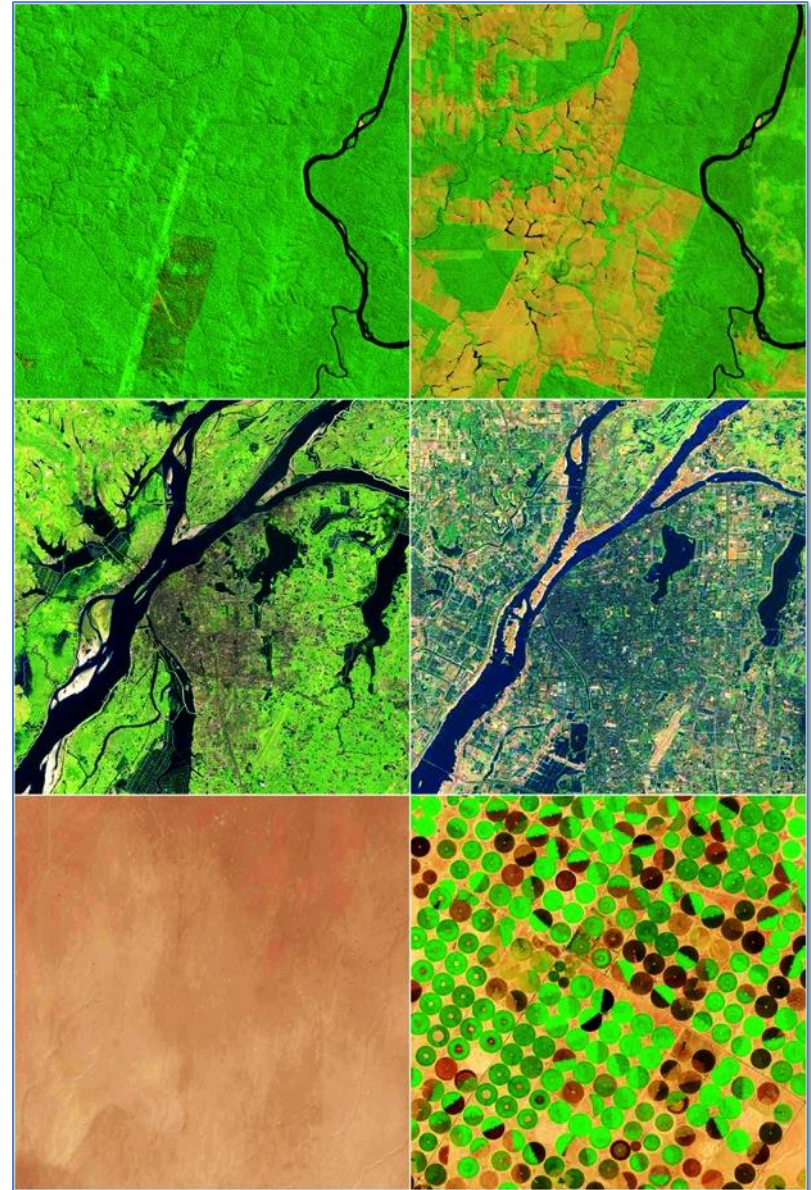


Harrena Forest, Ethiopia January 2014, Landsat, courtesy USGS and NASA



Harrena Forest, Ethiopia January 2014, Landsat, courtesy USGS and NASA

- ① Coverage of protected areas
- ② Effectiveness of Protected Areas
- ③ on line monitoring systems, and reporting systems



Top: Rondonia deforestation (04.08.84 to 04.08.13)
Centre: Nanchang urbanization (15.07.89 to 25.01.14)
Bottom: Al Jouf agricultural expansion (26.10.84 to 30.01.14)
all images Landsat courtesy USGS / NASA
all tiles 300 km² and N - S orientation