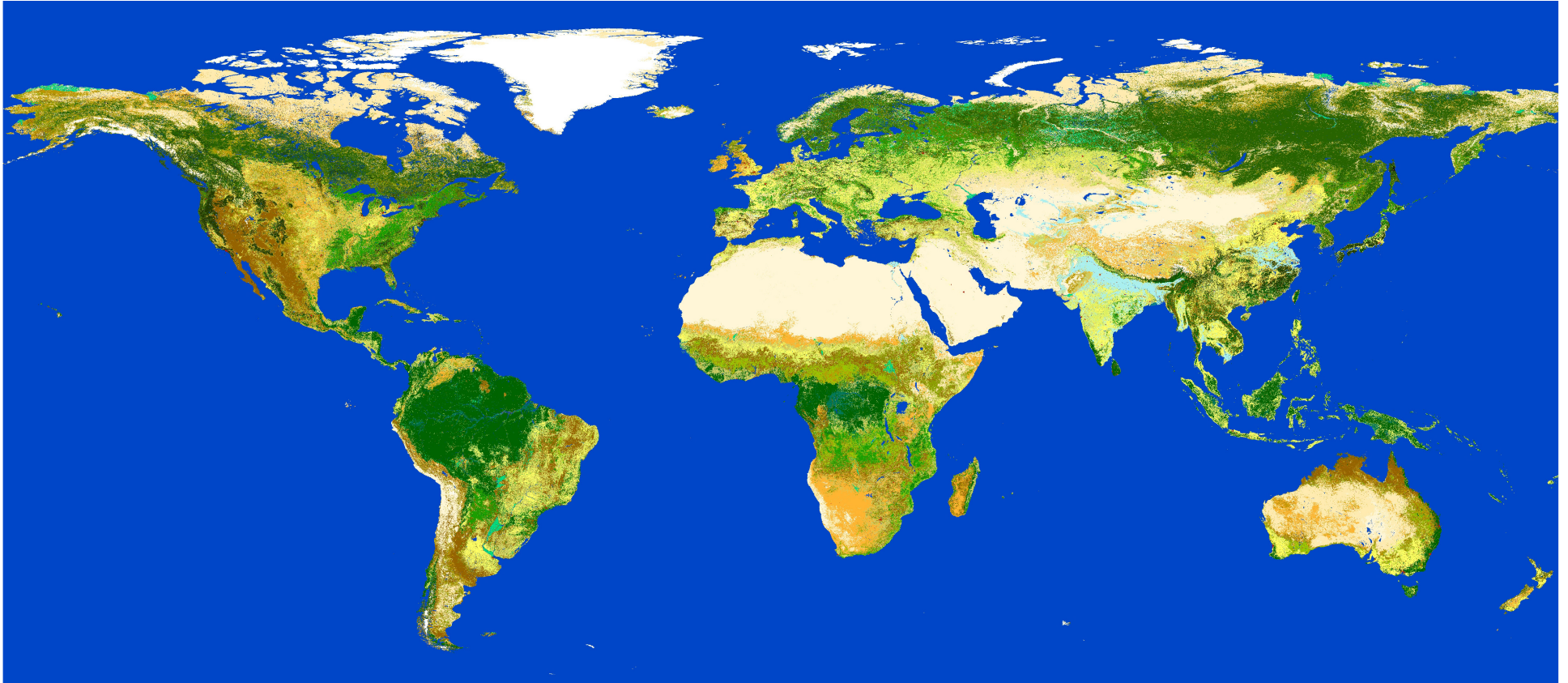**Joint NRCE - FOIP activity**

WISDOM global

**Global cartographic overview of current consumption of woody biomass
for energy and its potentialities**

Phase I : Supply Module
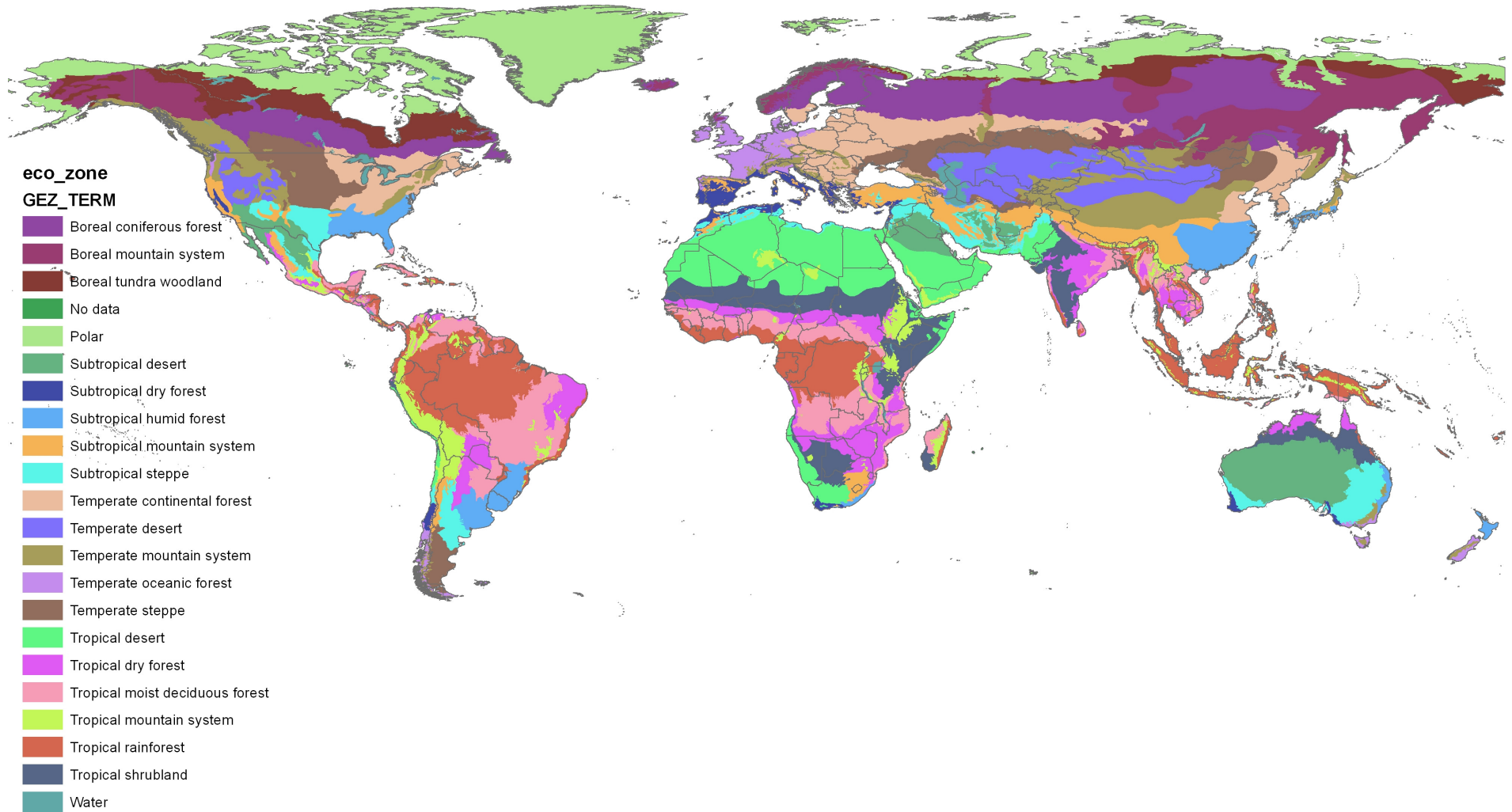
Rudi Drigo,
Matieu Henry, Renato Cumani

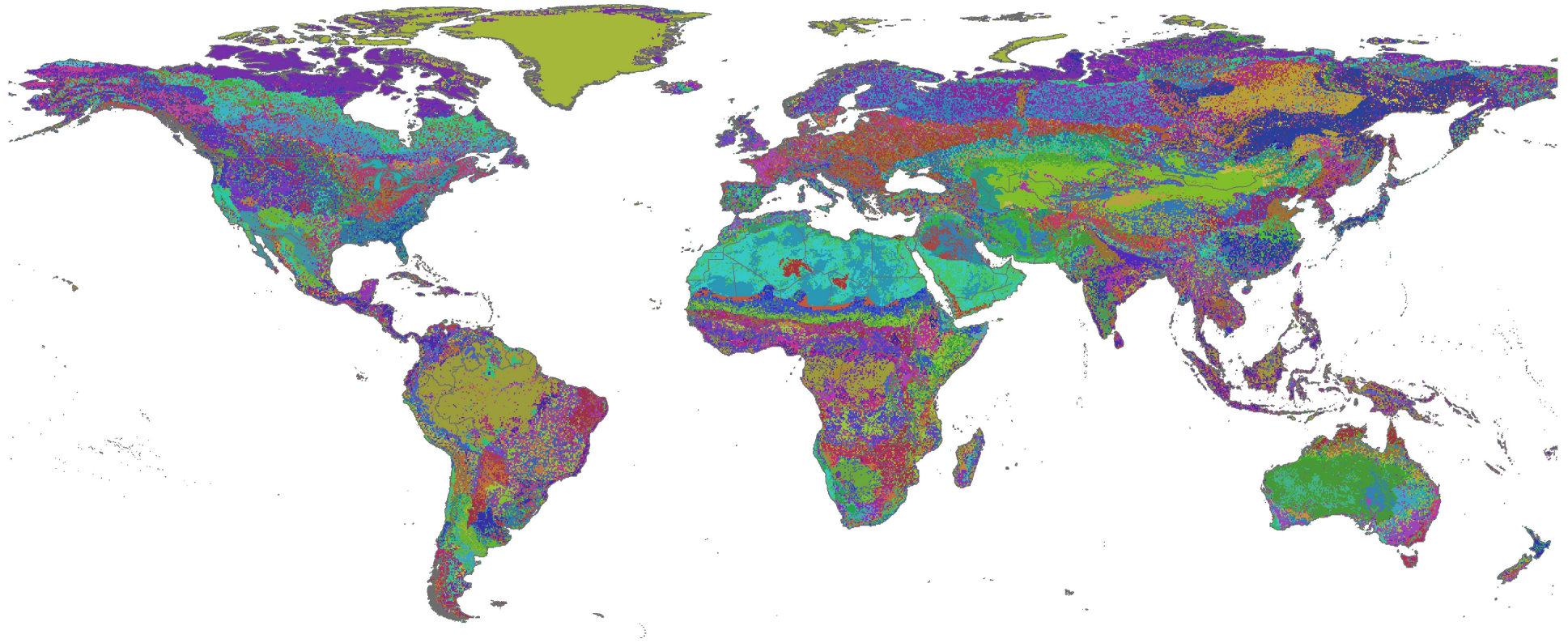WISDOM = Woodfuel Integrated Supply/Demand Overview Mapping

Globcover 10arc-sec (300m)

Global Ecological Zone (FAO FRA 2000)

eco_zone

GEZ_TERM

- Boreal coniferous forest
- Boreal mountain system
- Boreal tundra woodland
- No data
- Polar
- Subtropical desert
- Subtropical dry forest
- Subtropical humid forest
- Subtropical mountain system
- Subtropical steppe
- Temperate continental forest
- Temperate desert
- Temperate mountain system
- Temperate oceanic forest
- Temperate steppe
- Tropical desert
- Tropical dry forest
- Tropical moist deciduous forest
- Tropical mountain system
- Tropical rainforest
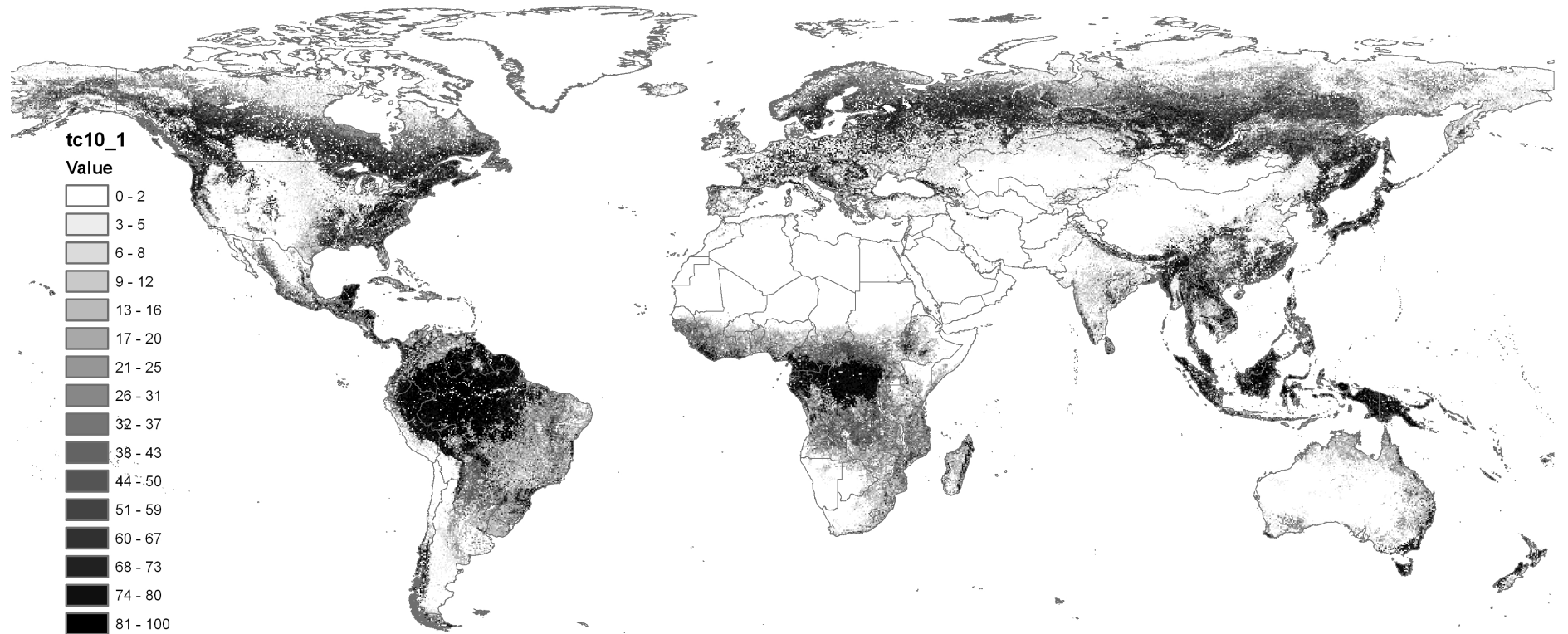- Tropical shrubland
- Water

Combined Globcover and Global Ecological Zone

52 GLC x 20 GEZ = 1040 glc_eco classes
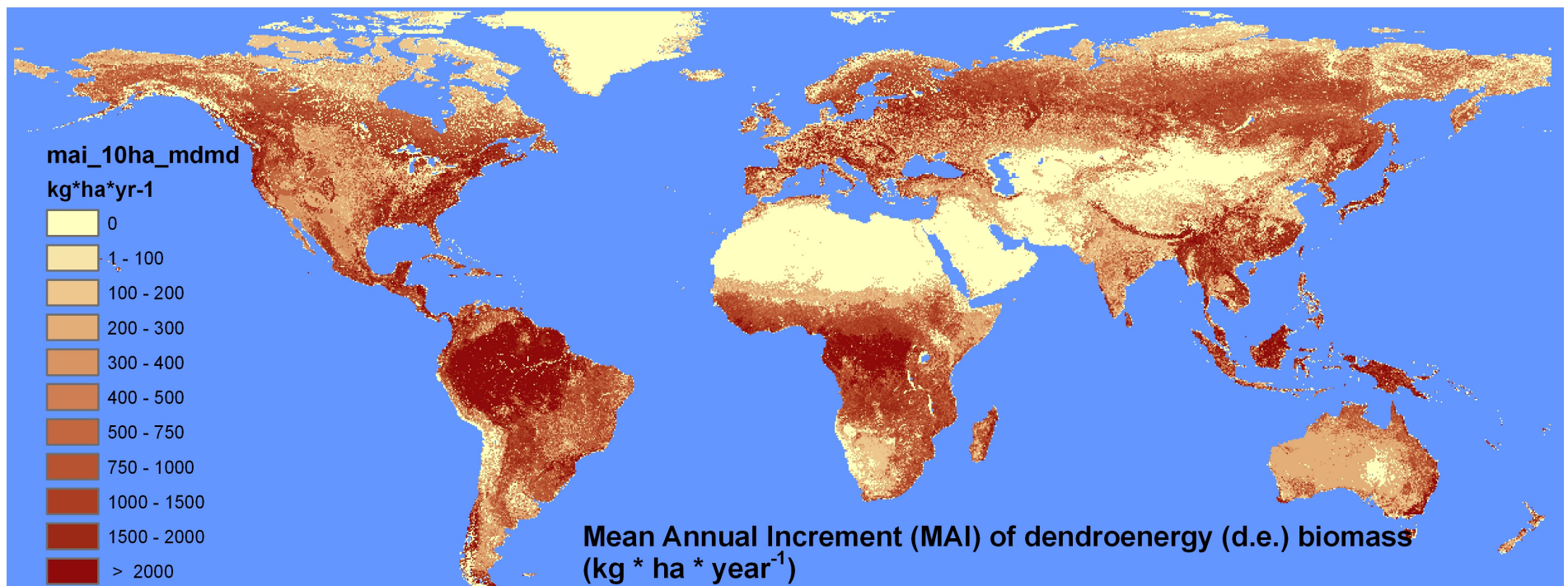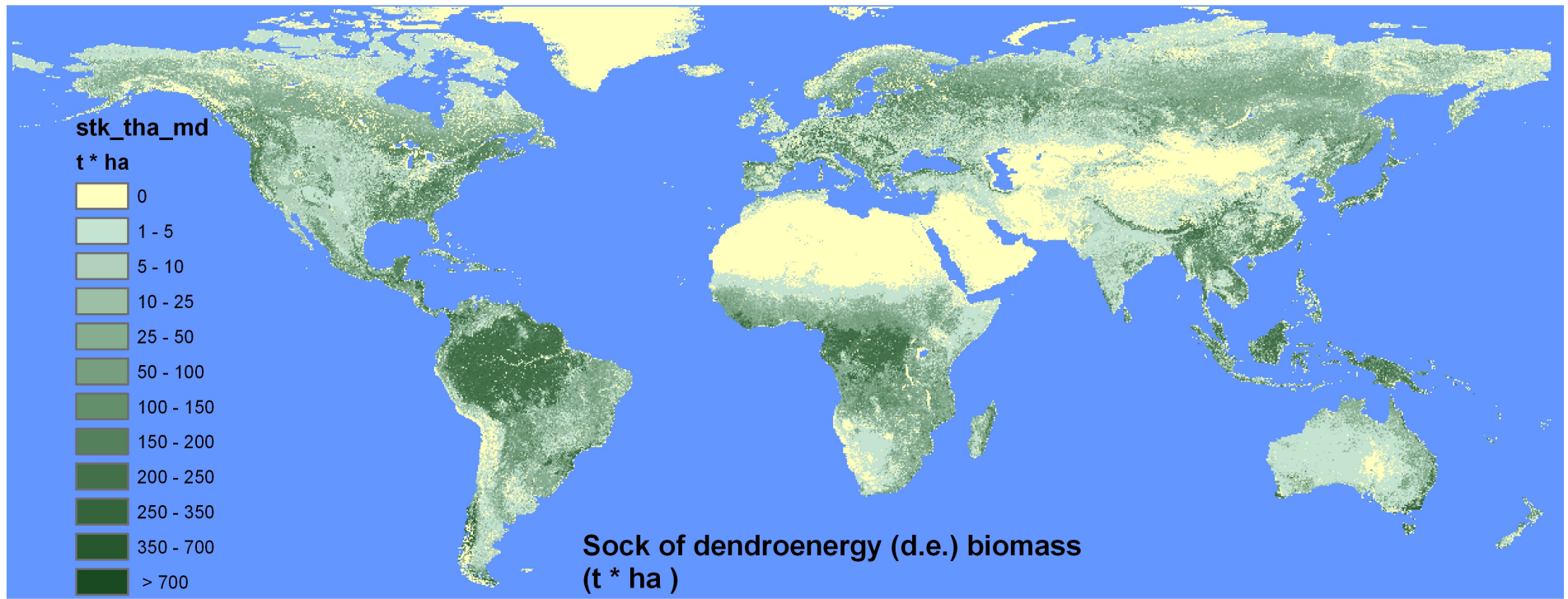
MODIS VCF Tree Cover Percent (Hansen et al. 2003)

tc10_1

Value

- 0 - 2
- 3 - 5
- 6 - 8
- 9 - 12
- 13 - 16
- 17 - 20
- 21 - 25
- 26 - 31
- 32 - 37
- 38 - 43
- 44 - 50
- 51 - 59
- 60 - 67
- 68 - 73
- 74 - 80
- 81 - 100

Field observations

Globcover "masterclasses"	code	Broadl. evergr. or s.decid. forest B1	Broadl. decid. forest B2	Needle-leaved evergr. forest N1	Needle-leaved decid. forest N2	Mixed forest B-N	Mangrove B5	Shrubland (<5m) S	Total
FAO Global Ecological Zones	code	B1	B2	N1	N2	B-N	B5	S	
Tropical rainforest	11	2367	60				38	15	2480
Tropical moist deciduous forest	12	49	429	26		9	5	51	569
Tropical dry forest	13	30	408	30		8	6	240	722
Tropical shrubland	14	37	18					36	91
Tropical desert	15		1						1
Tropical mountain system	16	12	25	2		1		3	43
Subtropical humid forest	21	21	25	76	2		7	3	134
Subtropical dry forest	22	7		12				4	23
Subtropical steppe	23	46		6				14	66
Subtropical desert	24	3						29	32
Subtropical mountain system	25	1	3	93				6	103
Temperate oceanic forest	31	10	111	235	5			5	366
Temperate continental forest	32		609	1050	69	2			1730
Temperate steppe	33		169	253	3				425
Temperate desert	34			26					26
Temperate mountain system	35	39	122	242	51	1			455
Boreal coniferous forest	41		200	579	59				838
Boreal tundra woodland	42		5	9	1				15
Boreal mountain system	43		79	147	137				363
Polar	50		3	2	23				28
Total		2622	2267	2788	350	21	56	406	8510

Aboveground biomass stock
(medium variant)

stk_10kgha_md
<VALUE>

- 0
- 0 - 500
- 500.0000001 - 1,000
- 1,000.000001 - 2,500
- 2,500.000001 - 5,000
- 5,000.000001 - 10,000
- 10,000.00001 - 15,000
- 15,000.00001 - 20,000
- 20,000.00001 - 25,000
- 25,000.00001 - 35,000
- 35,000.00001 - 291,681

stk_tha_md

t * ha

- 0
- 1 - 5
- 5 - 10
- 10 - 25
- 25 - 50
- 50 - 100
- 100 - 150
- 150 - 200
- 200 - 250
- 250 - 350
- 350 - 700
- > 700

Sock of dendroenergy (d.e.) biomass (t * ha)

mai_10ha_mdmd

kg*ha*yr-1

- 0
- 1 - 100
- 100 - 200
- 200 - 300
- 300 - 400
- 400 - 500
- 500 - 750
- 750 - 1000
- 1000 - 1500
- 1500 - 2000
- > 2000
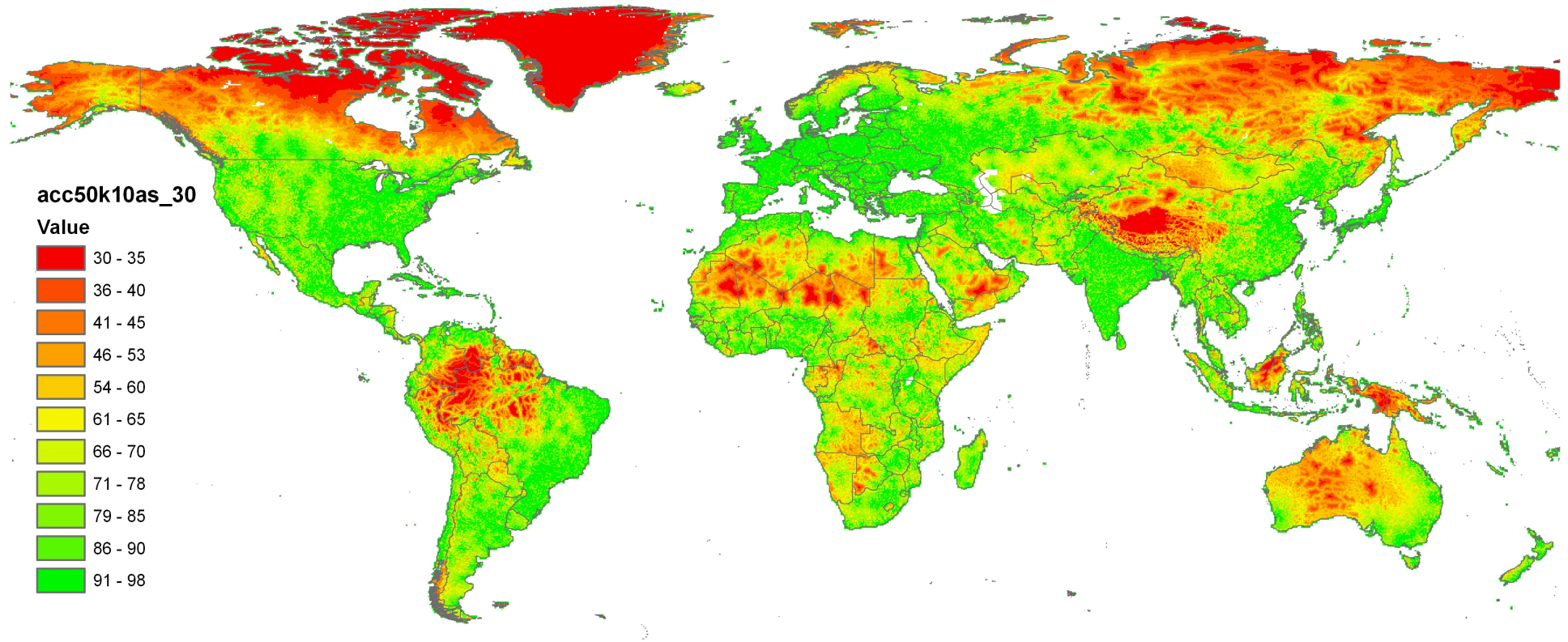
Mean Annual Increment (MAI) of dendroenergy (d.e.) biomass (kg * ha * year^{-1})

Protected areas IUCN / WCMC / UNEP

IUCN_09_pol_I_VI

▨	<all other values>

IUCNCAT

■	Ia
■	Ib
■	II
■	III
■	IV
■	V
■	VI
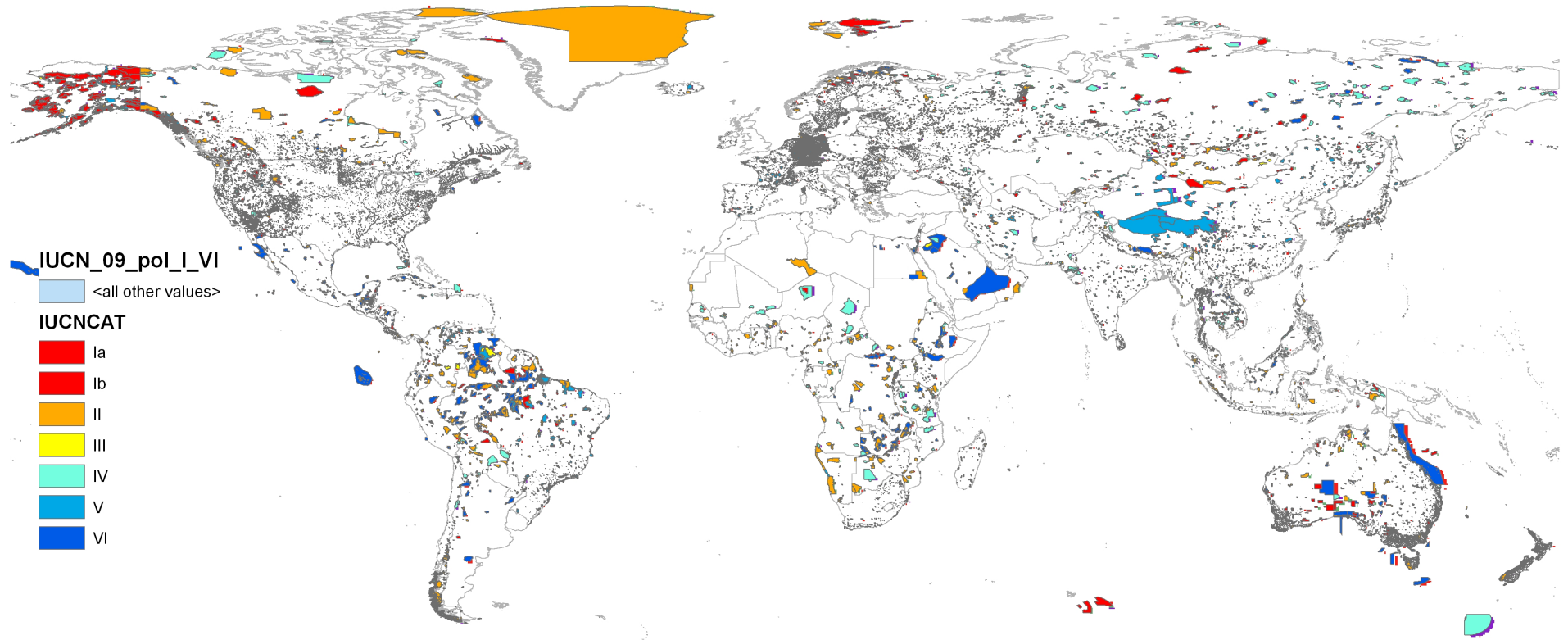
Physical accessibility

Nelson, A. Estimated travel time to the nearest city in year 2000. JRC

acc50k10as_30

Value

- 30 - 35
- 36 - 40
- 41 - 45
- 46 - 53
- 54 - 60
- 61 - 65
- 66 - 70
- 71 - 78
- 79 - 85
- 86 - 90
- 91 - 98

mai_ac_q_mdmd

d.e. biom q_cell_yr

	0
	1 - 5
	6 - 10
	11 - 15
	16 - 20
	21 - 30
	31 - 50
	51 - 75
	76 - 100
	101 - 150
	151 - 538

Physically and legally accessible Mean Annual Increment (MAI) of dendroenergy (d.e.) biomass (100kg * cell * year^{-1})

Total MAI of d.e. biomass

Physically and legally accessible MAI of d.e. biomass

0 25 50 100
Kilometers

0 25 50 100
Kilometers

Woody biomass accessible and potentially available for energy

avmai_10mdmd
10kg/10as pix.

- 0
- 1 - 50
- 51 - 150
- 151 - 300
- 301 - 500
- 501 - 750
- 751 - 1,000
- 1,001 - 1,250
- 1,251 - 1,500
- 1,501 - 2,000
- 2,001 - 10,000
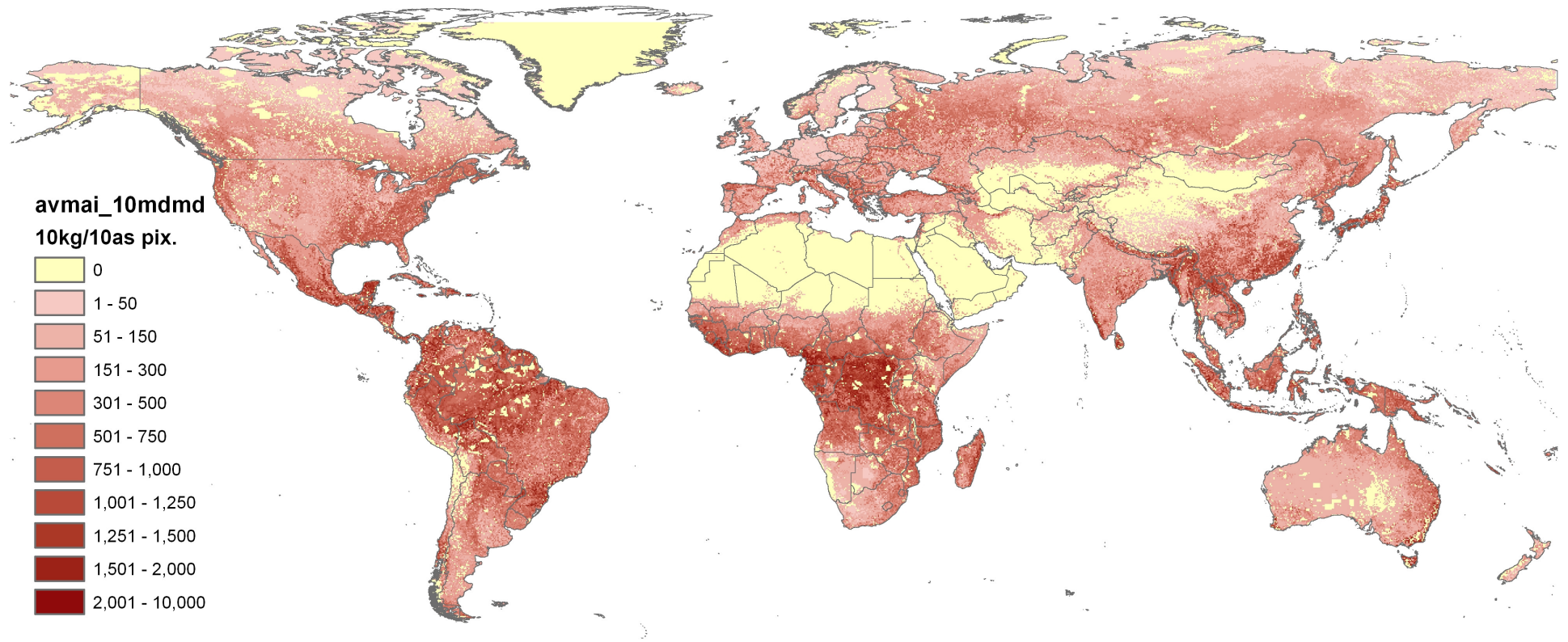
WISDOM, biomass assessment and risk mapping

1 . SUPPLY module

- land use/land cover
- biomass for energy from:
  - forests, OWL, shrubs,
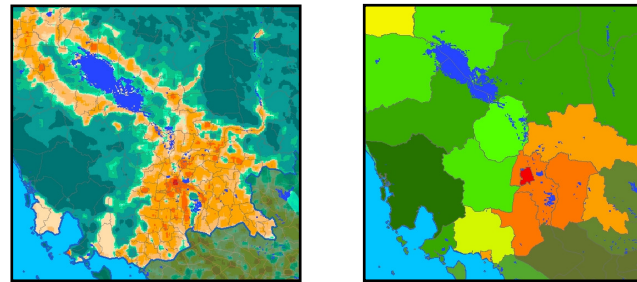 - plantations, orchards,
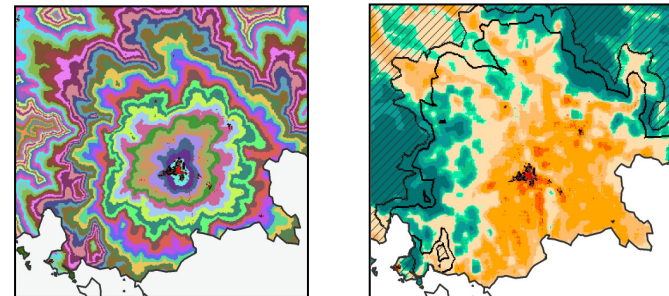 - other land uses
  - ....
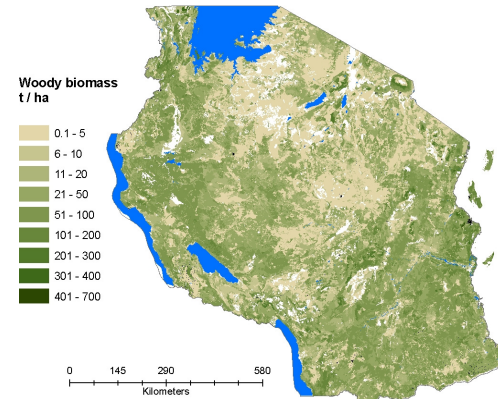
2 . DEMAND module

3. INTEGRATION module

4. Priority areas

By pixel
By units

5. Commercial supply potential
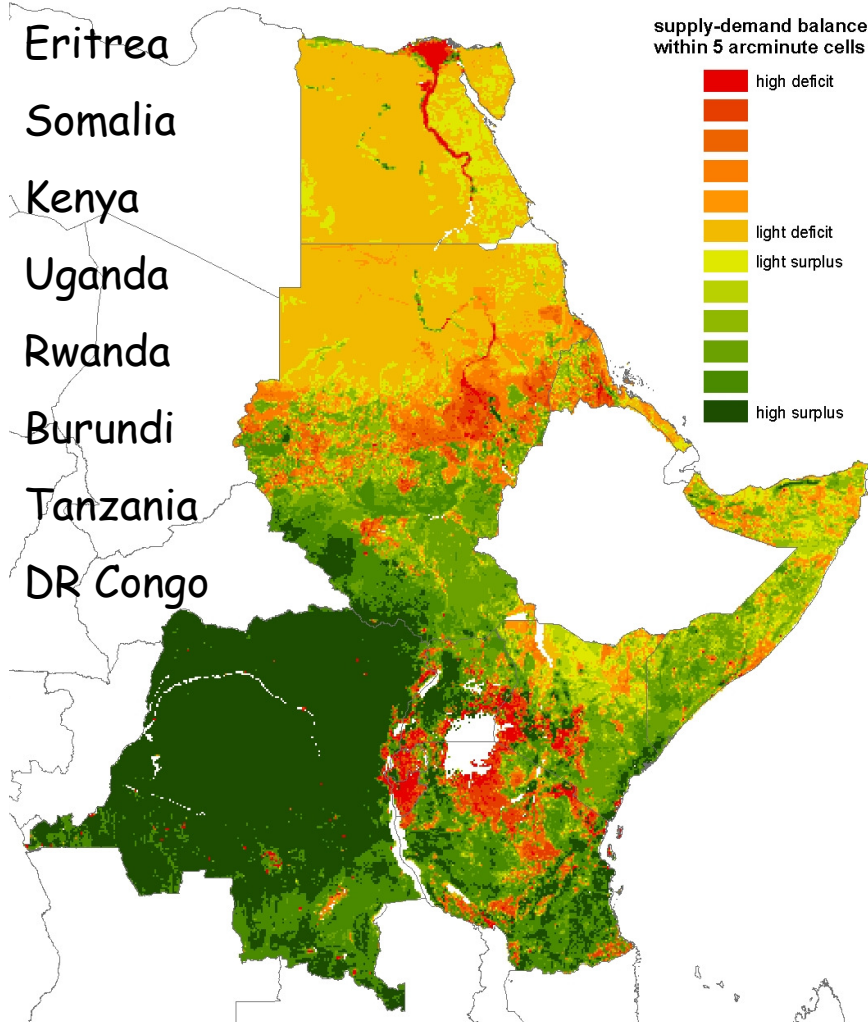
6. Woodshed analysis /
Biodistrict delineation

Woody biomass
t / ha

0.1 - 5
6 - 10
11 - 20
21 - 50
51 - 100
101 - 200
201 - 300
301 - 400
401 - 700

0   145   290   580
Kilometers

Regional WISDOM studies

African countries covered by Africover

Egypt
Sudan
Eritrea
Somalia
Kenya
Uganda
Rwanda
Burundi
Tanzania
DR Congo

supply-demand balance within 5 arcminute cells

- high deficit
- light deficit
- light surplus
- high surplus

Continental SE Asia (Poverty mapping Project)

Myanmar
Yunnan (China)
Vietnam
Laos
Thailand
Cambodia
Malaysia

Cell-level balance based on the analysis of surrounding 9 x 9 cells

- large deficit
- balanced supply/demand
- large surplus