

Indonesian Forest Resource Monitoring

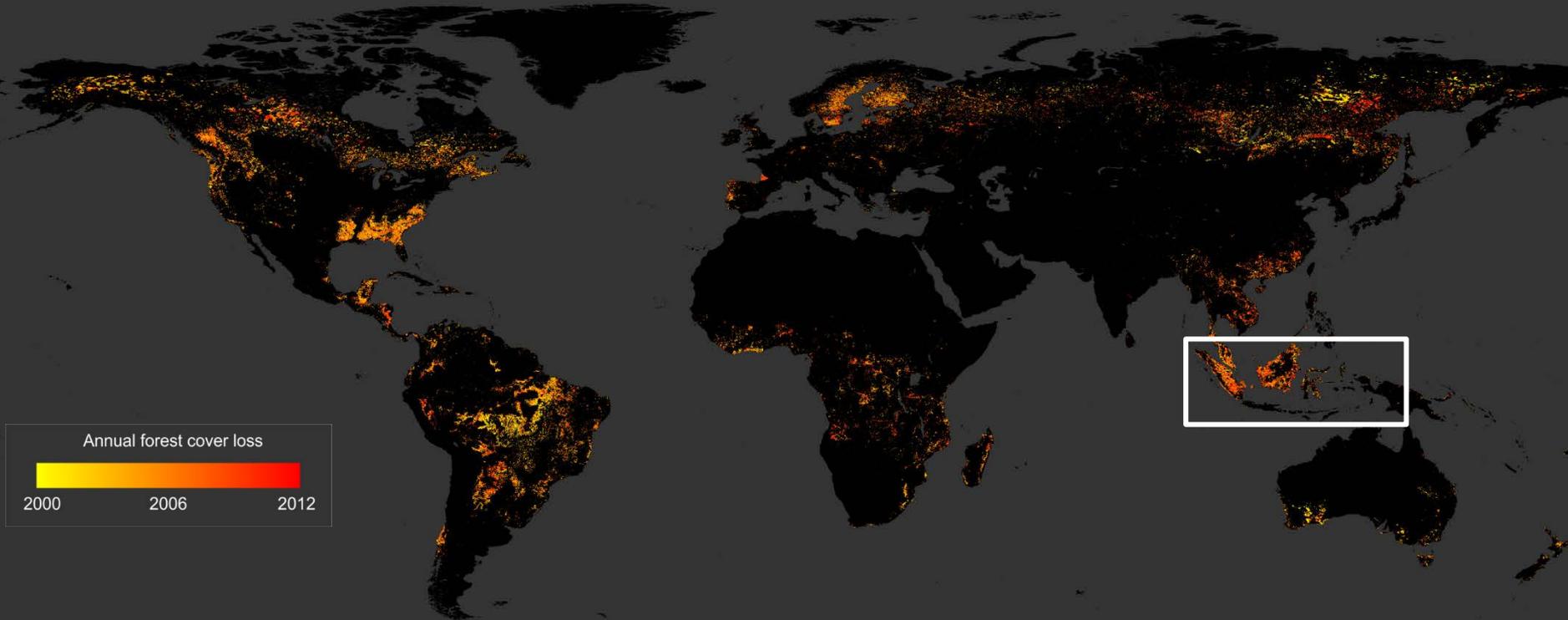


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Jakarta, 12 November 2014

From global data set to national



<http://earthenginepartners.appspot.com/science-2013-global-forest>

Science 15 November 2013:
Vol. 342 no. 6160 pp. 850-853
DOI: 10.1126/science.1244693

REPORT

High-Resolution Global Maps of 21st-Century Forest Cover Change

Source: Hansen *et al* 2013

Tree Cover



Forest Cover Change

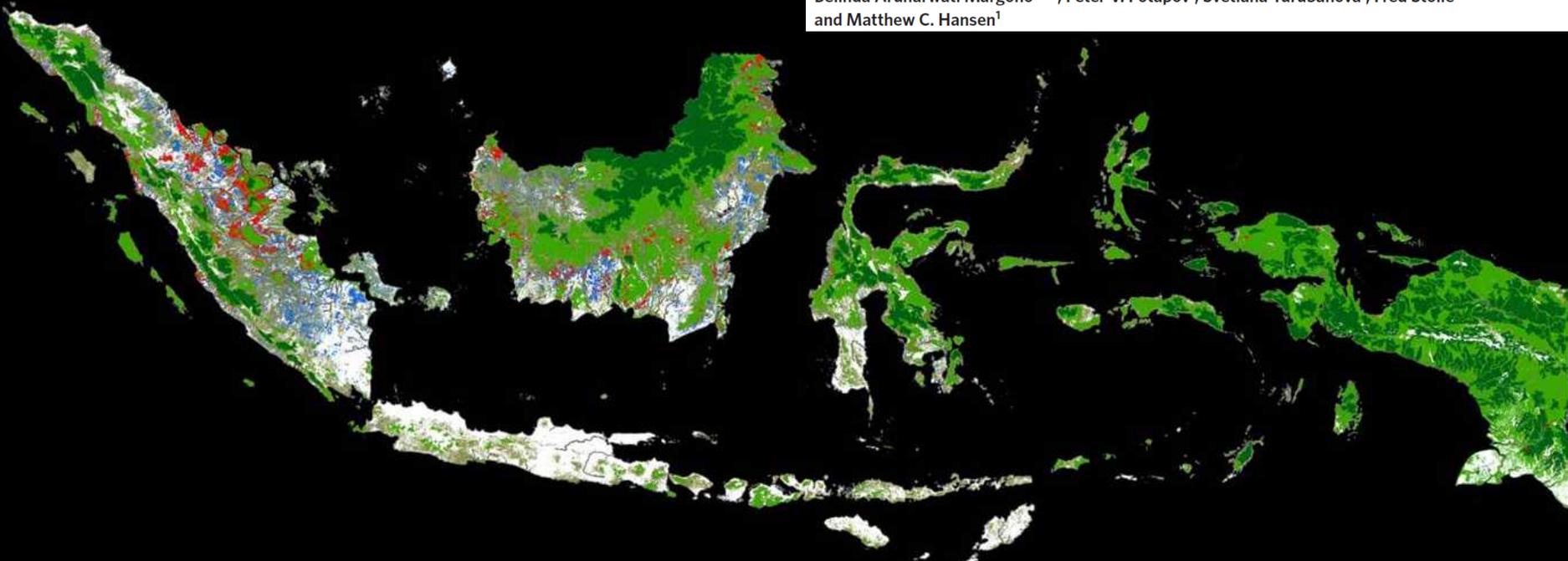
Mapping primary forest: General terminology

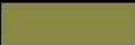
- Forest:** tree cover with a **minimum height of 5 meters** and canopy cover density of at least 30 percent at the Landsat pixel scale – **Tree cover / Tutupan pohon**
- **Primary forests:** mature forest stands that retain their **natural composition, structure,** and have **not been** completely **cleared** and **re-planted** in recent history – **Natural forest / hutan alam**
 - **Primary intact forest:** an **unbroken expanse** of natural ecosystems of current forest extent, without signs of significant human activity, with an area of **at least 500 km²** – **Hutan primer**
 - **Primary degraded forest:** mature primary forest that has been **fragmented** or subjected to **forest utilization** or other human disturbances, which have led to partial canopy loss and altered forest composition and structure – **Hutan sekunder**
 - **Forest cover loss:** an area having experienced **a stand-replacement** disturbance - **Deforestasi**
 - **Forest degradation:** an area having experienced **a transition** from primary **intact** forest to primary **degraded** forest - **Degradasi**

Forest cover loss versus primary forest cover loss in Indonesia, 2000-2012

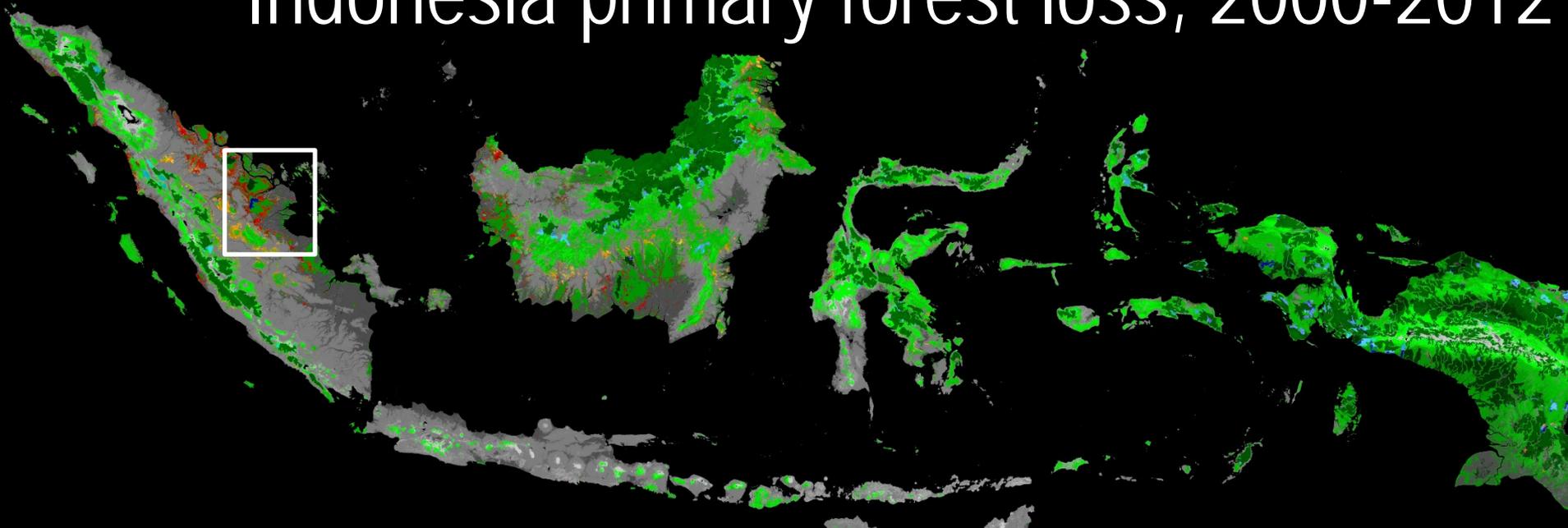
Primary forest cover loss in Indonesia over 2000-2012

Belinda Arunarwati Margono^{1,2*}, Peter V. Potapov¹, Svetlana Turubanova¹, Fred Stolle³ and Matthew C. Hansen¹

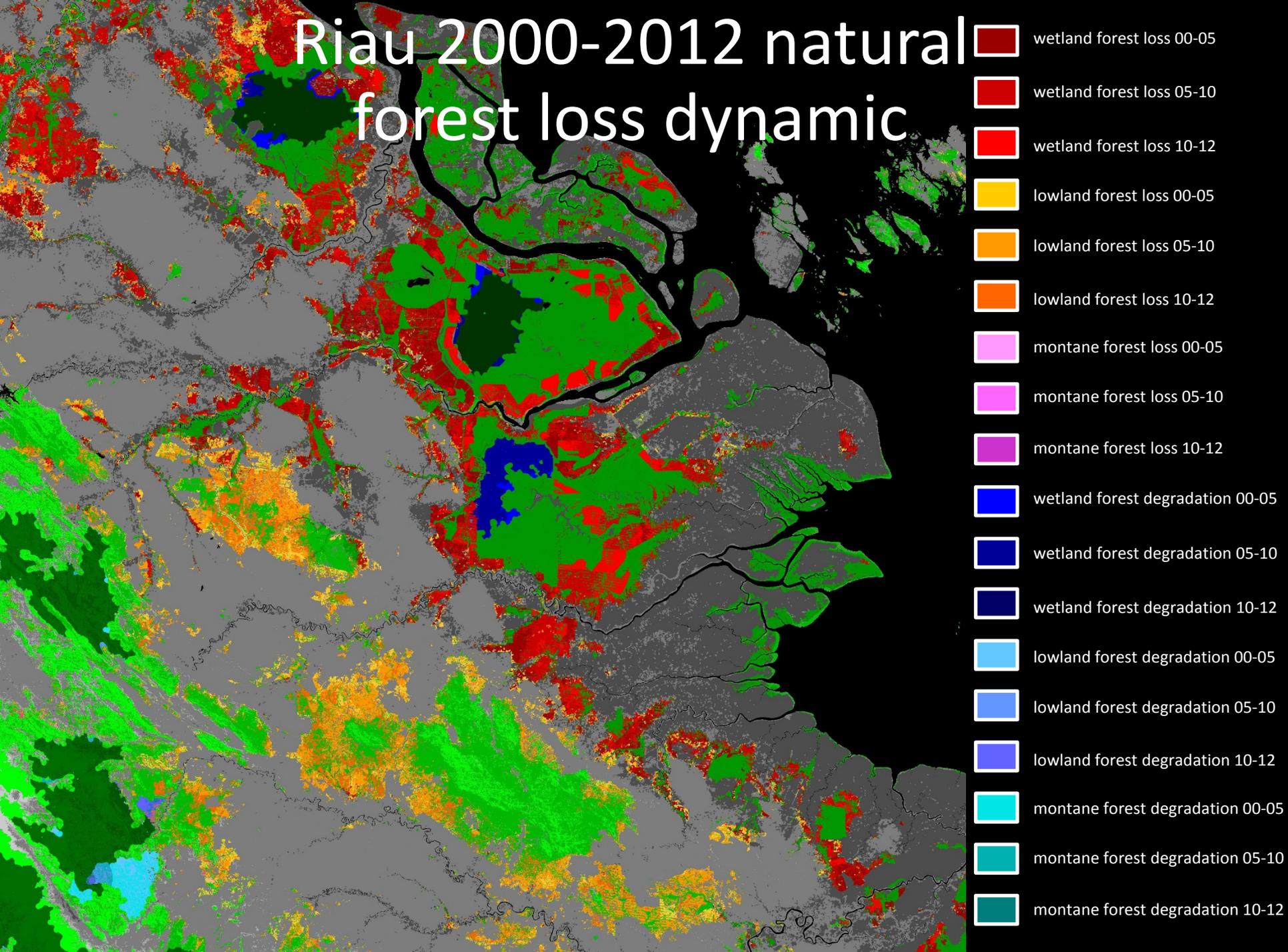


- | | | | |
|--|--------------------------------|--|--|
|  | Non-forest cover |  | Non-primary forests cover loss 2000-2012 |
|  | Non-primary forest cover |  | Primary forests cover loss 2000-2012 |
|  | Primary degraded forests cover | | |
|  | Primary intact forests cover | | |

Indonesia primary forest loss, 2000-2012



Riau 2000-2012 natural forest loss dynamic

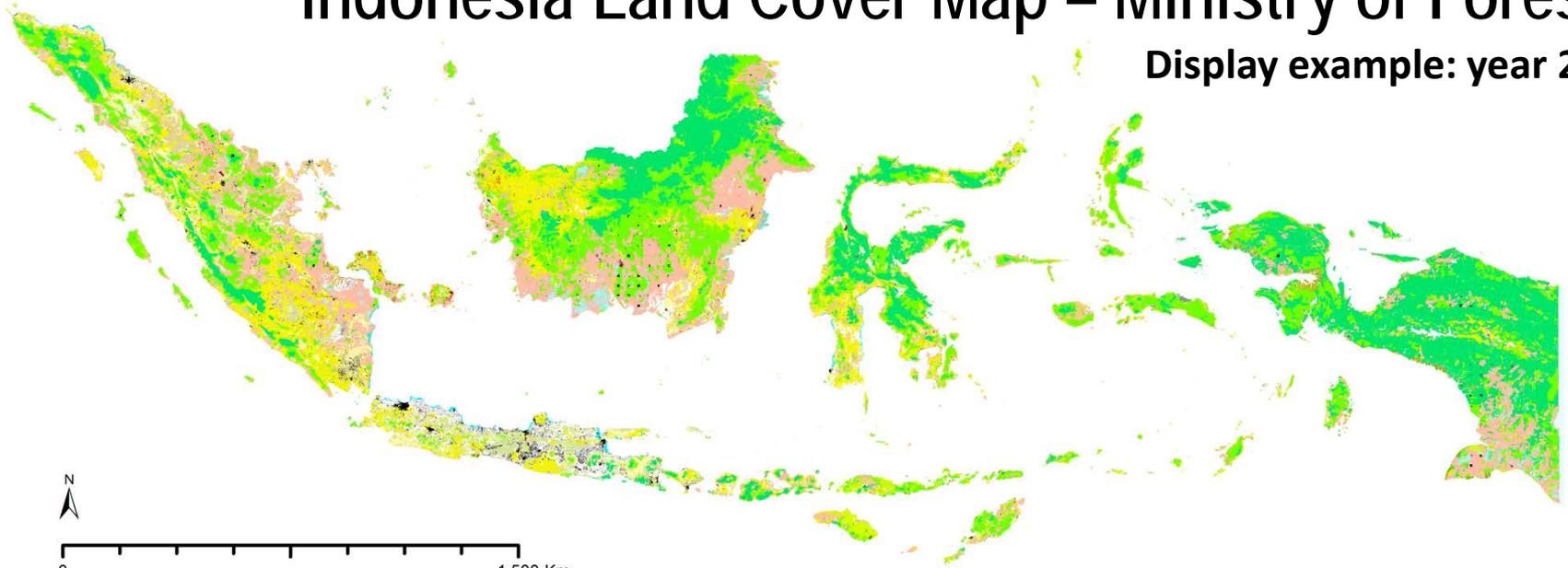


Results

- **38%** (6 Mha of 15.7 Mha) of gross forest loss in Indonesia 2000-2012 occurred within **primary forest cover (natural forest)**
- Primary forest loss in Indonesia is **accelerating**
- Year **2012** performs **the highest** primary forest loss, > 0.8 Mha
- By 2012, Indonesia had **surpassed** Brazil (\pm 0.5 Mha – PRODES 2013) in area of primary forest loss
- Proportional loss of primary forests in **wetland** landforms increased as well with Sumatra losing more forest cover in wetlands than adjacent lowlands
 - **Sumatra** had higher wetland primary forest loss, due to the **exhaustion** of lowland primary forest resource
 - **Kalimantan** is almost balance, with more loss in lowland primary forest, indicating **an earlier stage** of the forest transition
- Almost all clearing of primary forests occurred within degraded types, meaning **logging preceded clearing** processes
- Loss within official forest land uses that restrict or prohibit clearing totaled 40% of all loss within national forest land

Indonesia Land Cover Map – Ministry of Forestry

Display example: year 2000



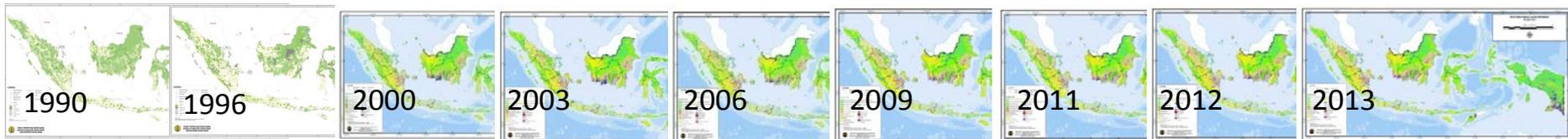
0 1,500 Km



23 classes

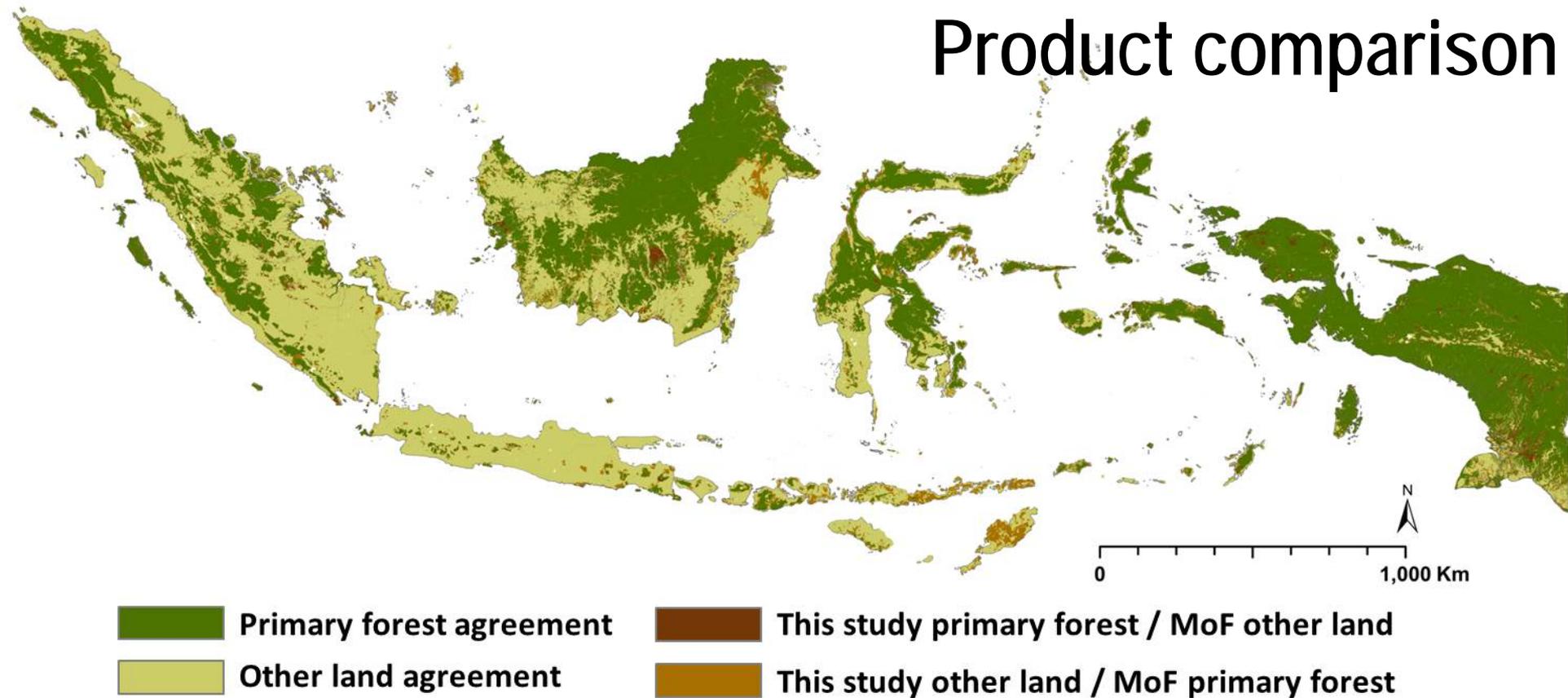
Class description explained on SNI 7645 - 2010

Available layers are for year 2000, 2003, 2006, 2009, 2011, 2012, 2013, plus 1990 and 1996



Further detail: <http://nfms.dephut.go.id/ipsdh/>

Product comparison



Assessment for agreement	Primary forests (intact & degraded)	Non-primary forests	Primary intact forest	Primary degraded forest
Overall agreement	90.2	90.2	70.4	70.4
Producer's agreement	90.0	88.9	58.2	84.5
User's agreement	91.4	90.4	81.2	63.7
Kappa statistic	80.0	80.0	42.0	42.0

Primary intact/primary degraded versus **primary forest/secondary forest**
(year **2000** is the year for starting the analysis)