

Degradation & Disinformation to Democracy: Dismantling the Major Drivers of Land Cover Change in Indonesian Borneo



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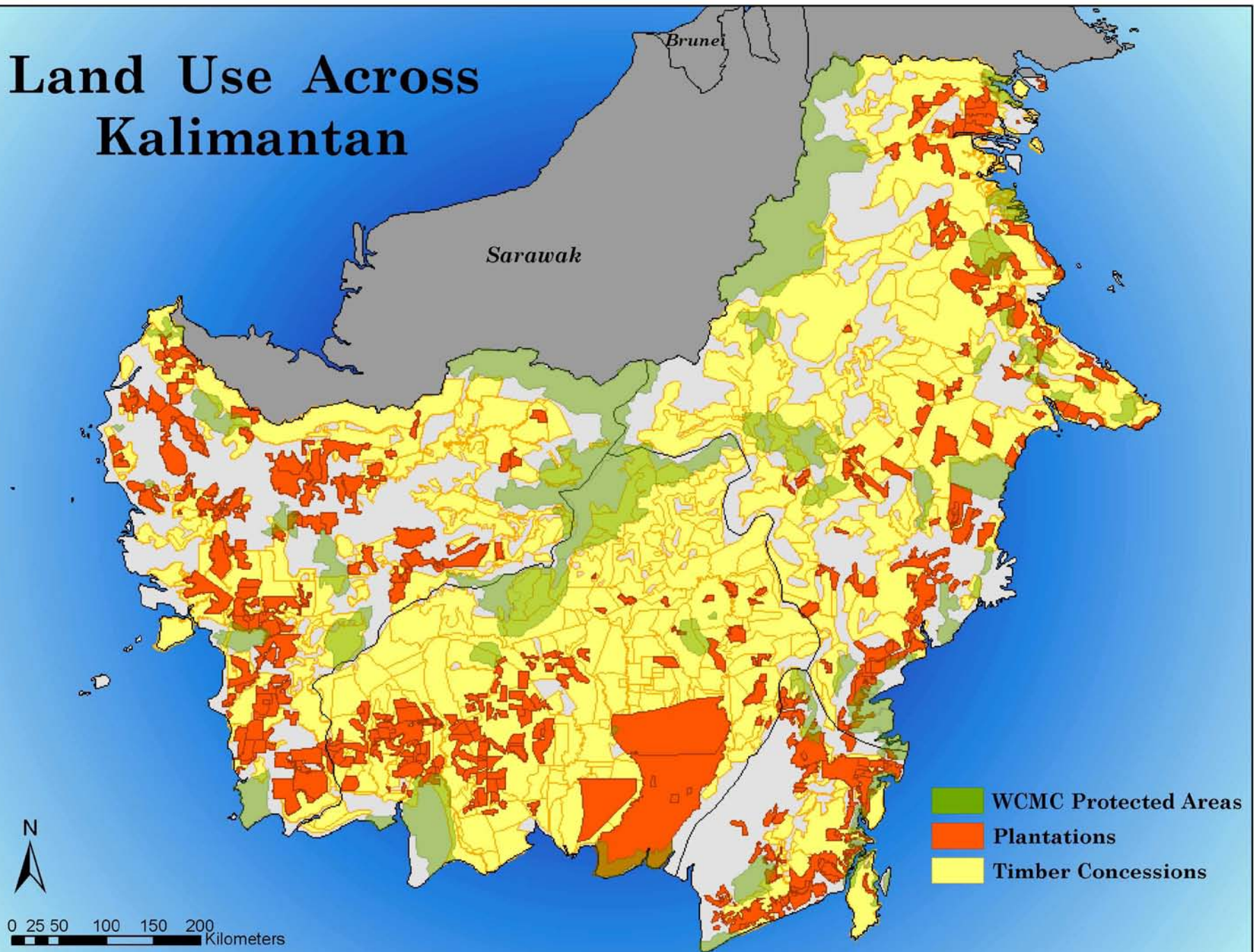
Overarching Questions

- What are the relative contributions of land use, natural ecosystem dynamics, fire and climate variability on forest and carbon dynamics in Bornean tropical forests?
- What are their synergistic effects and potential future trends?
- What are the major socio-economic and political drivers of land use change?
- How can this work be applied to policy and management for effective governance?

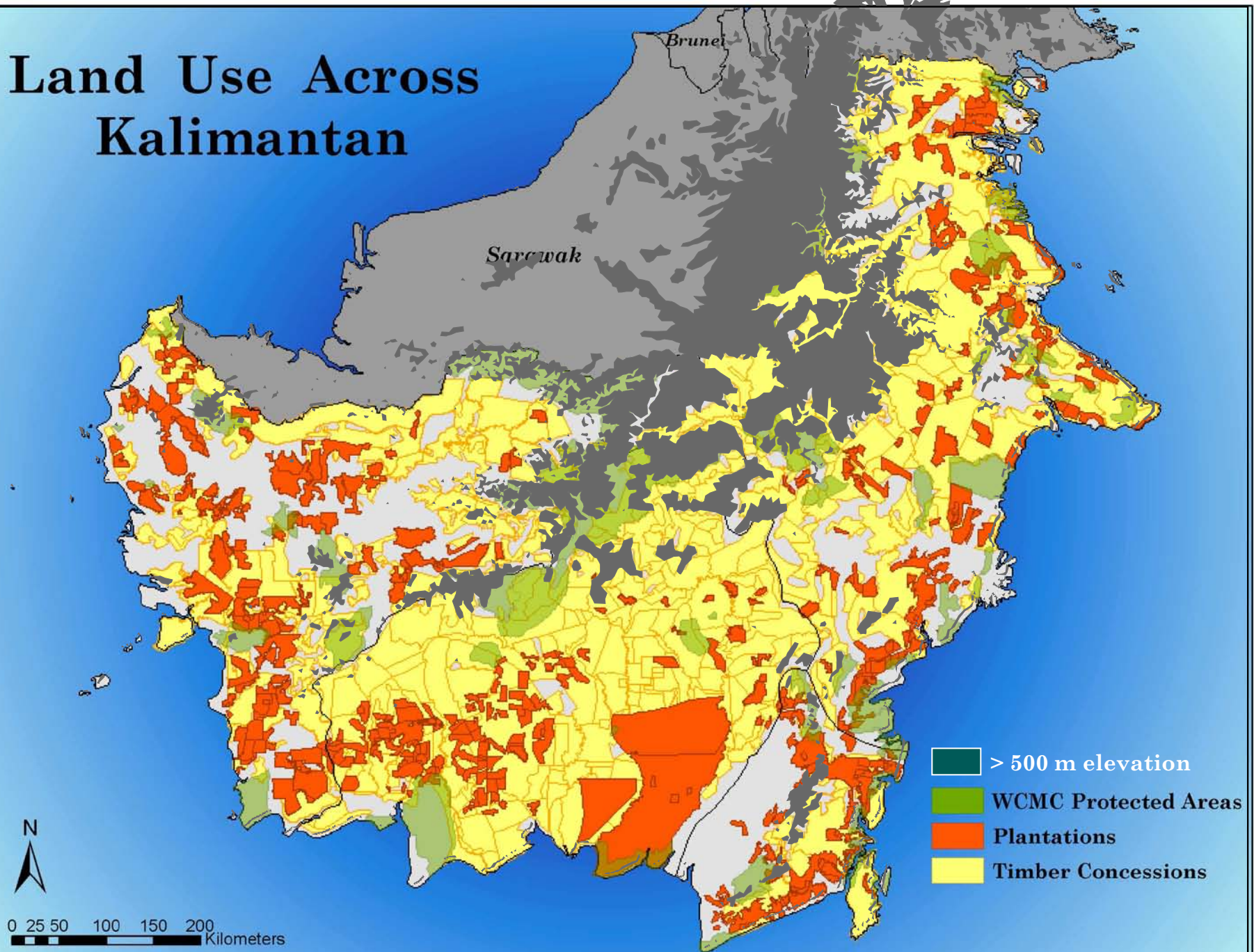
Objectives

- Determine carbon storage variation across forest and land use types;
- Conduct remote sensing derived analyses of LCLUC and carbon dynamics;
- Input field and remote sensing derived data from case regions into models;
- Evaluate carbon source/sink dynamics using models: past, present and future

Land Use Across Kalimantan



Land Use Across Kalimantan



Major Land Use Change w Implications for Carbon

Published

- Collapse of Timber Concessions w Logging of Remaining Primary Forests 'Protected Areas' ;

Preliminary Results

- Conversion of Logged Forests to Industrial Oil Palm Plantations: International Agribusiness;

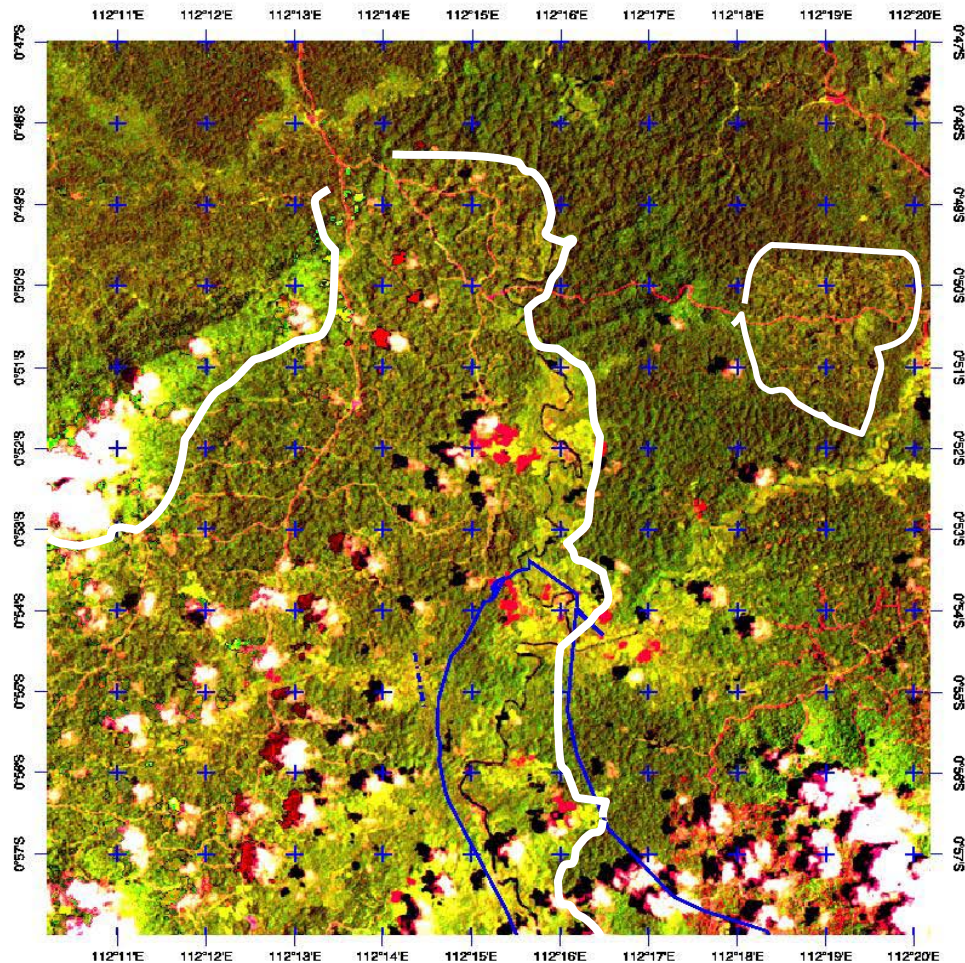
In Progress

- Assess C-Impact of Logging and Fires within Peat Swamps

Lack of Law Enforcement/Governance w Rampant Corruption

Logging – from Boom to Bust

PT Sari Bumi Kusuma Timber Concession



Blowup #3



RGB: ETM+ 743

Map Scale 1:100,000

- From 1970-2004, **72** timber concessions once occupied **7.2M** ha or **79%** of forest area (<500 m a.s.l.) in West Kalimantan;
- December 2004, six holdings (**8.3%**) with active timber harvest;
- **94.3%** reduction in area;
- Abandoned areas highly degraded **80-90% canopy removed**; often entered coupe several times;
- **Logging easily detected on Landsat**

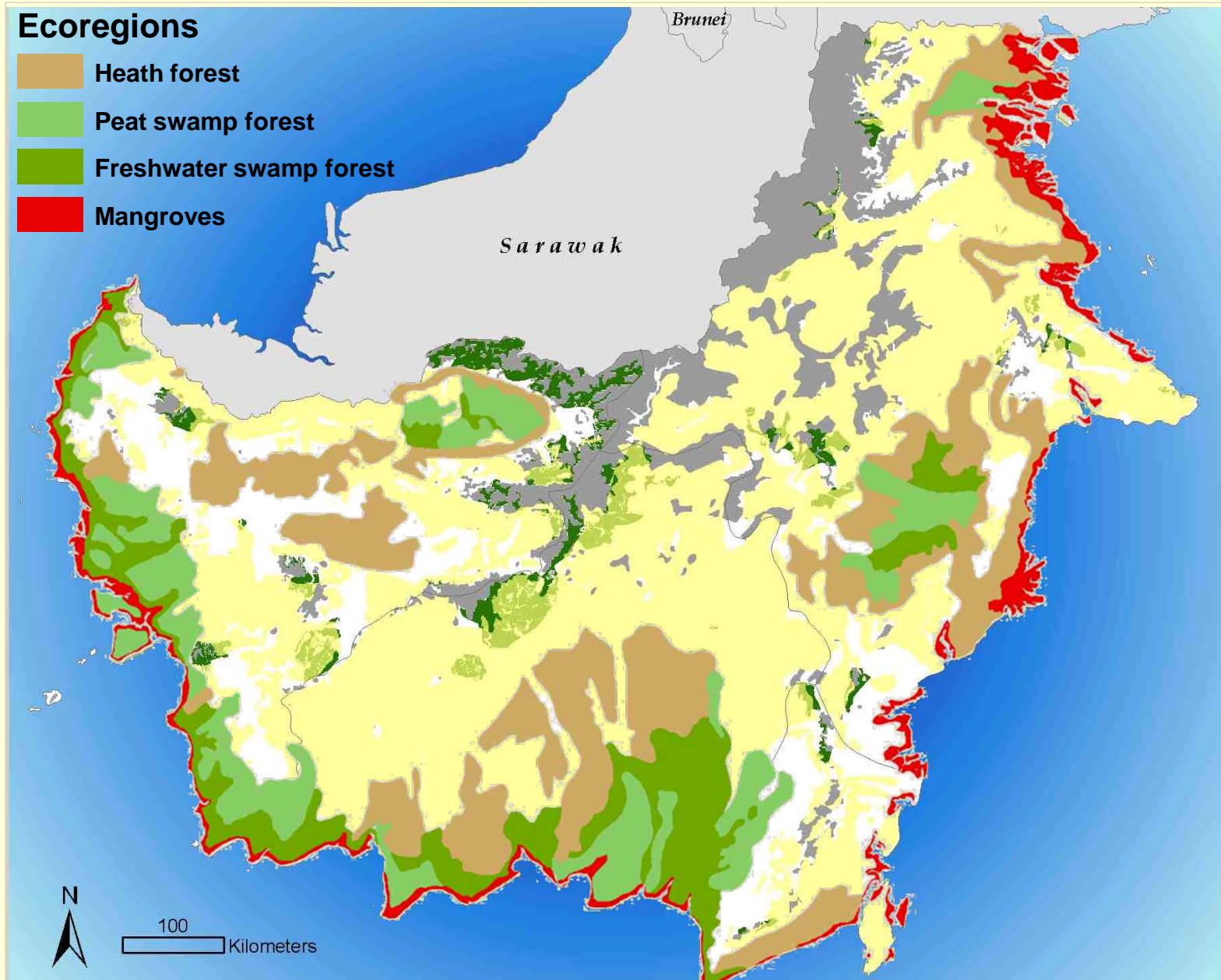
Over-Capacity Wood-Based Industries

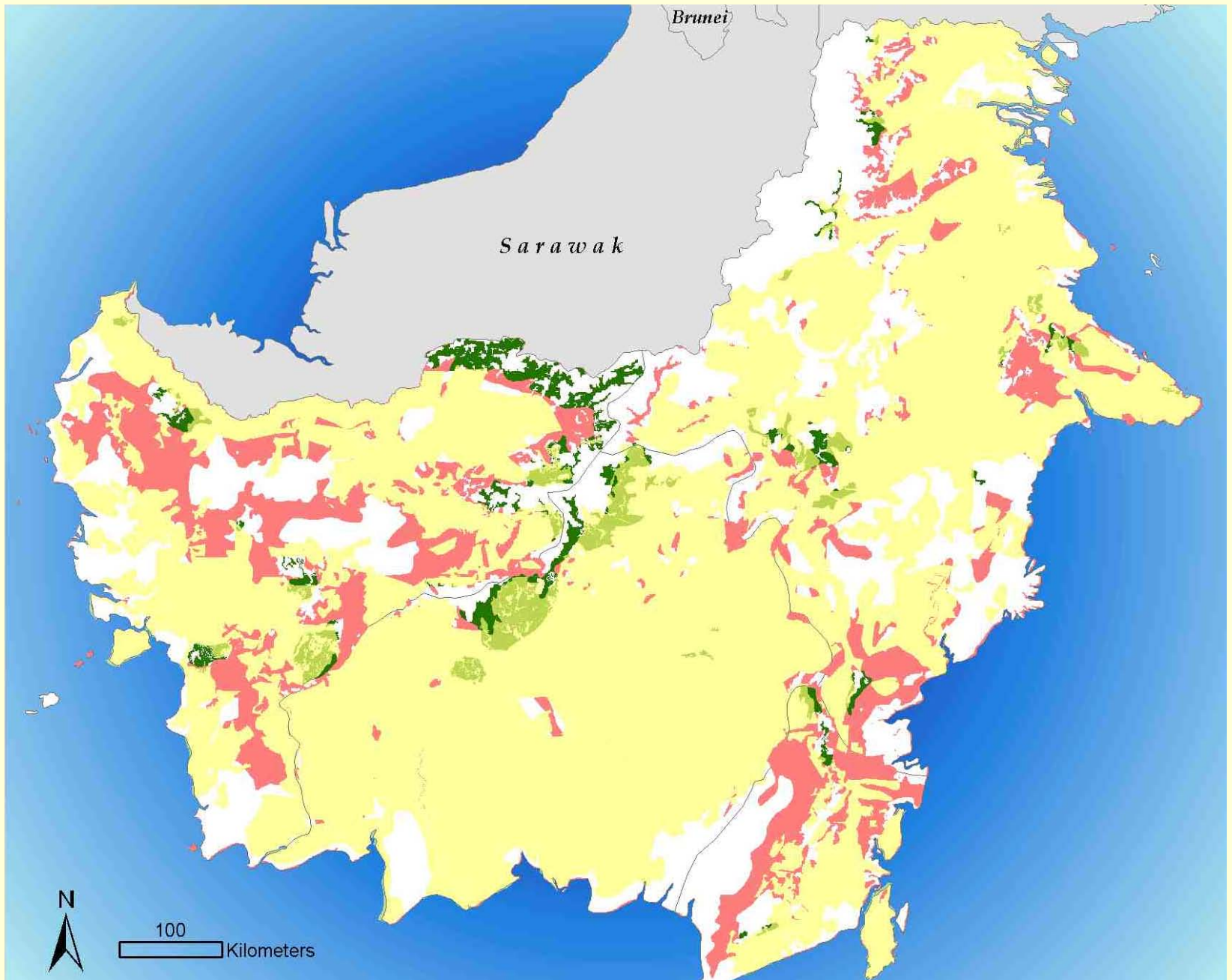


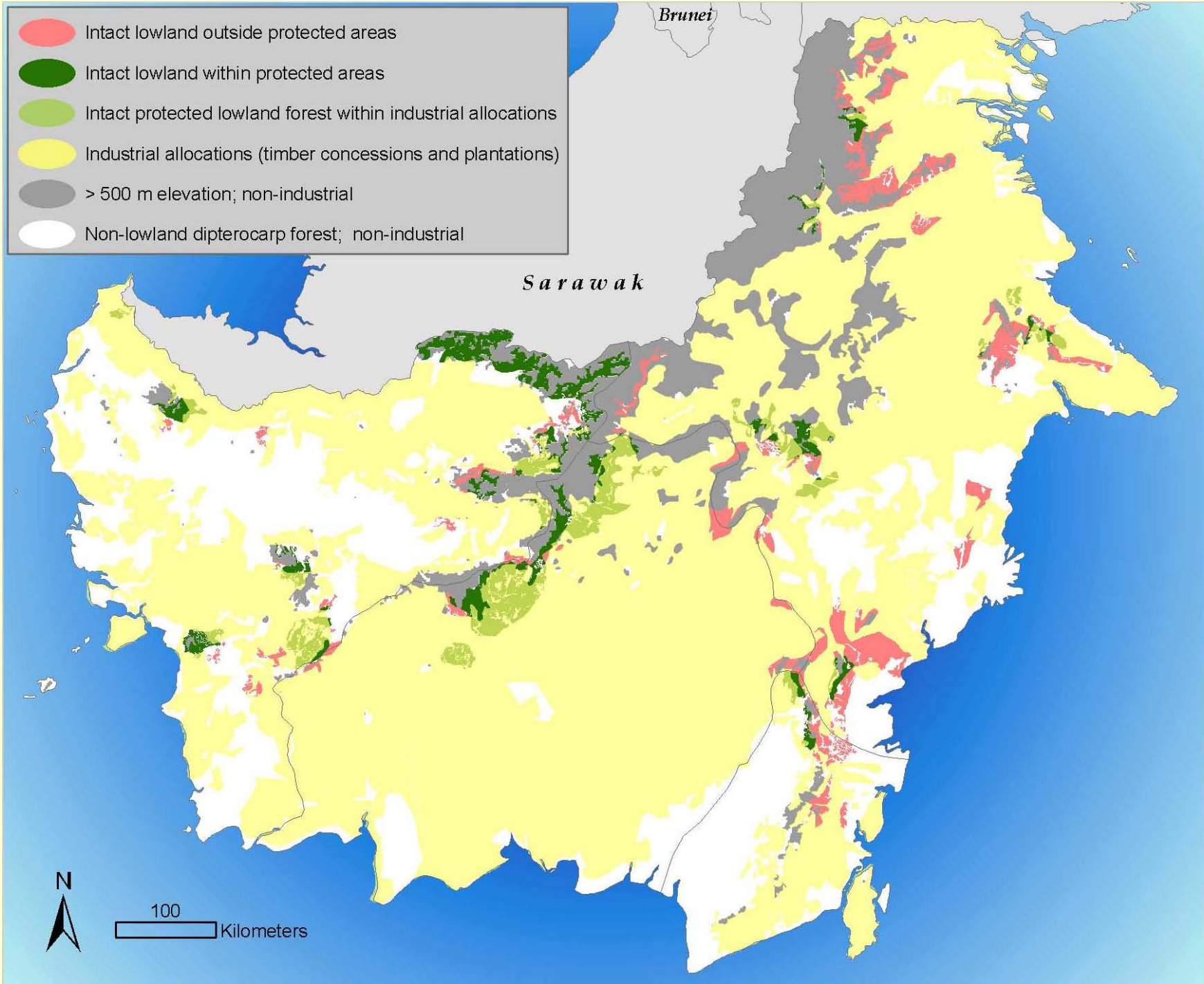
- **W. Kalimantan: 130 wood-based industries: 5M m³yr⁻¹;**
- **14 plywood industries: 2.6M m³yr⁻¹;**
- **Exceed concession capacity: '94-95: 22%; '99-00: 132%; '02-03: 162%**

Ecoregions

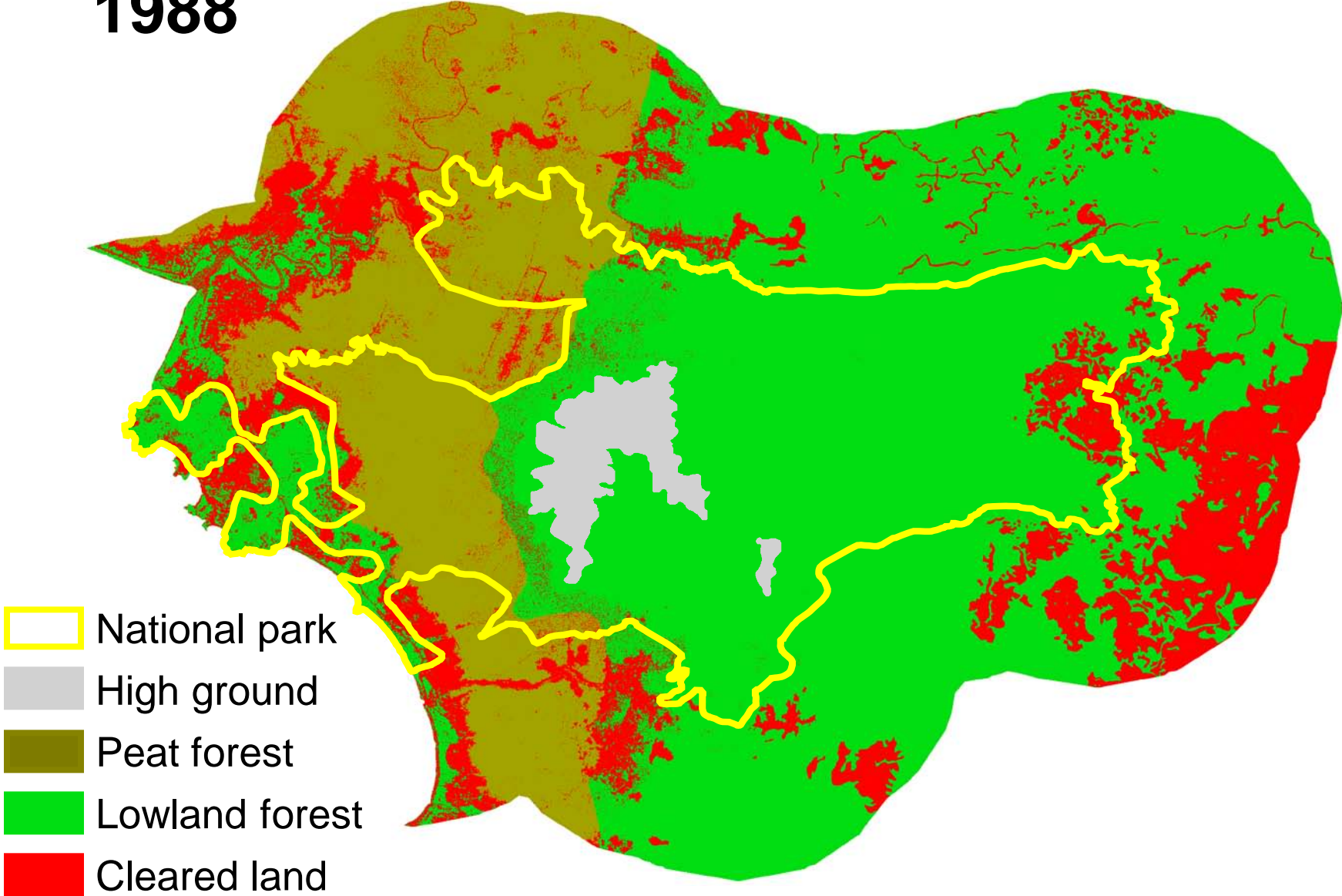
- Heath forest
- Peat swamp forest
- Freshwater swamp forest
- Mangroves



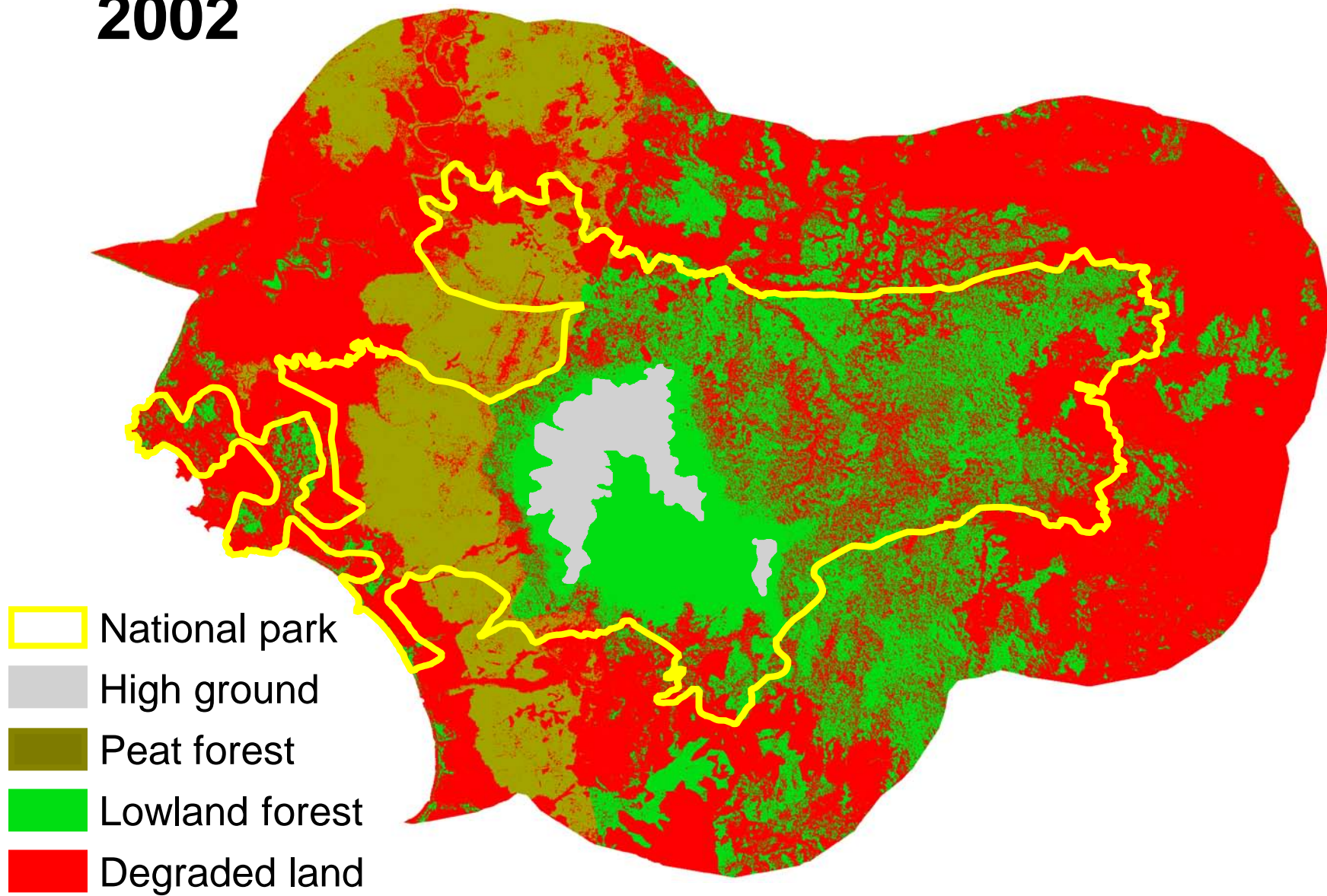




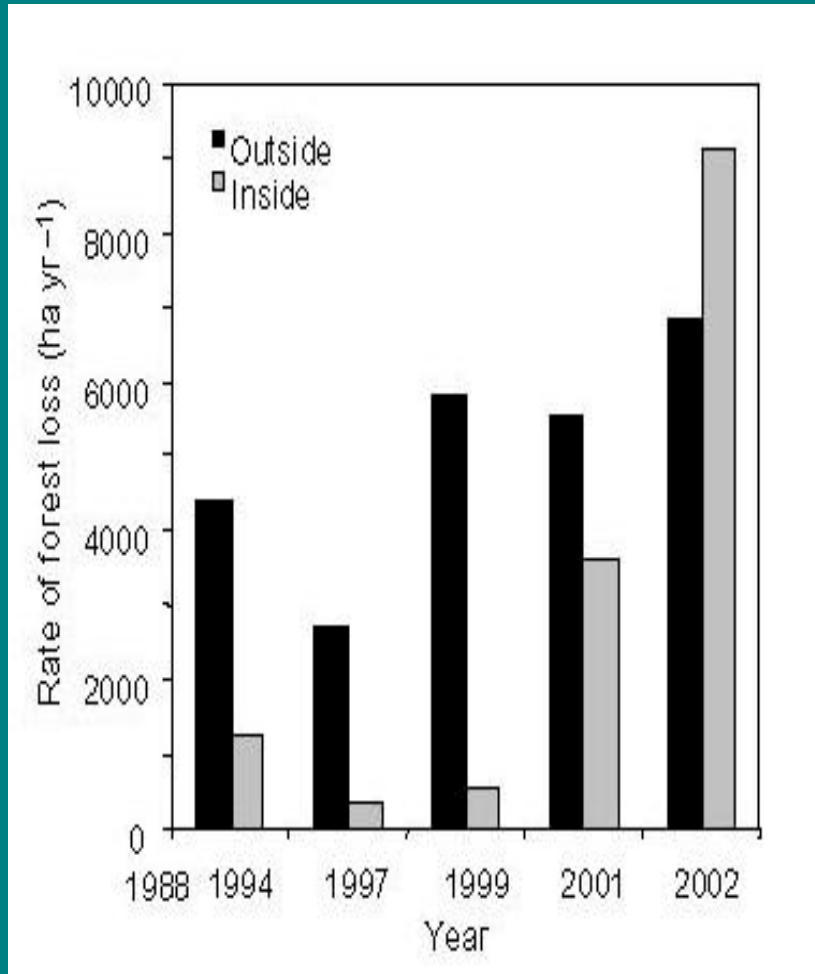
1988



2002

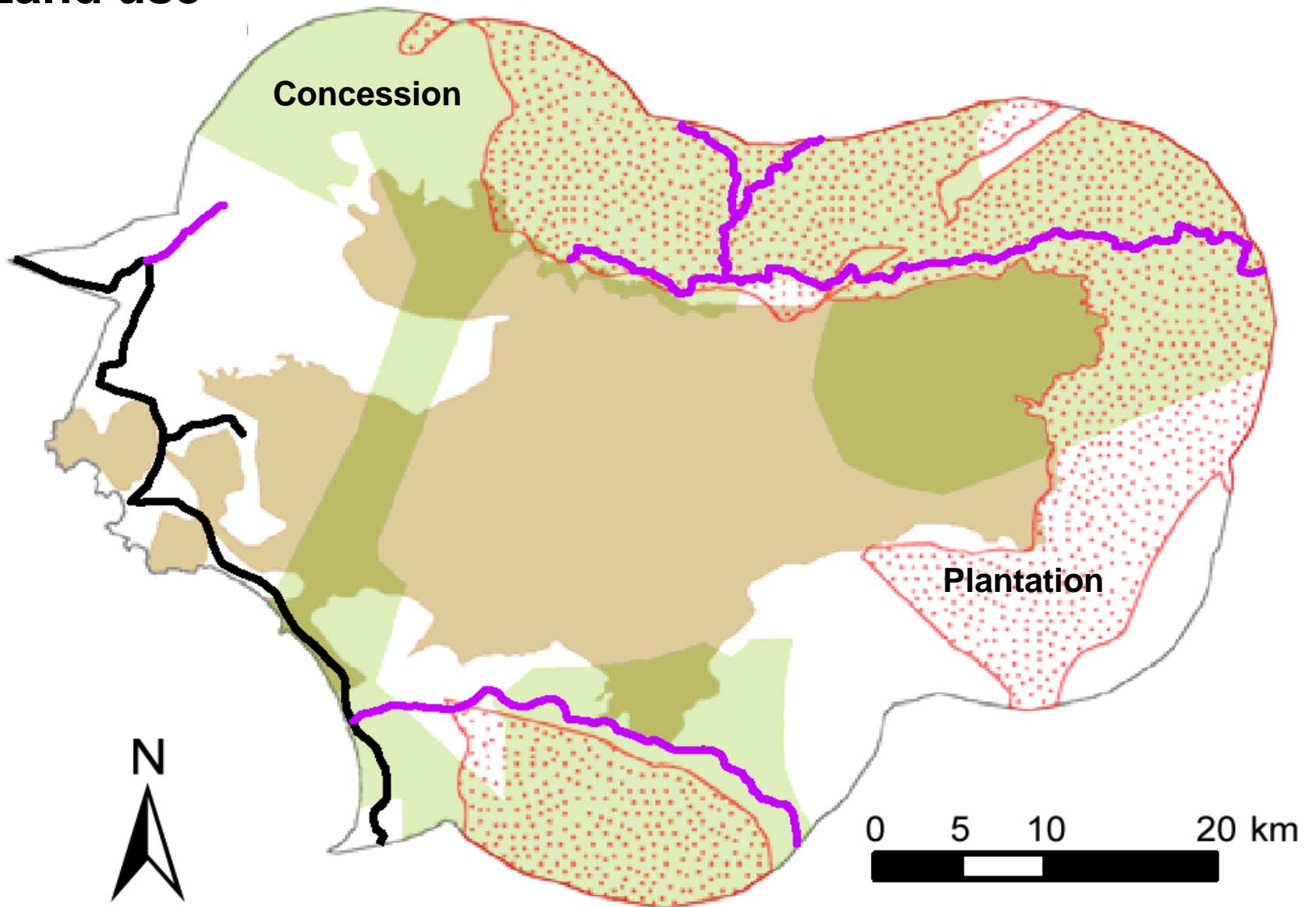


Matrix to Park

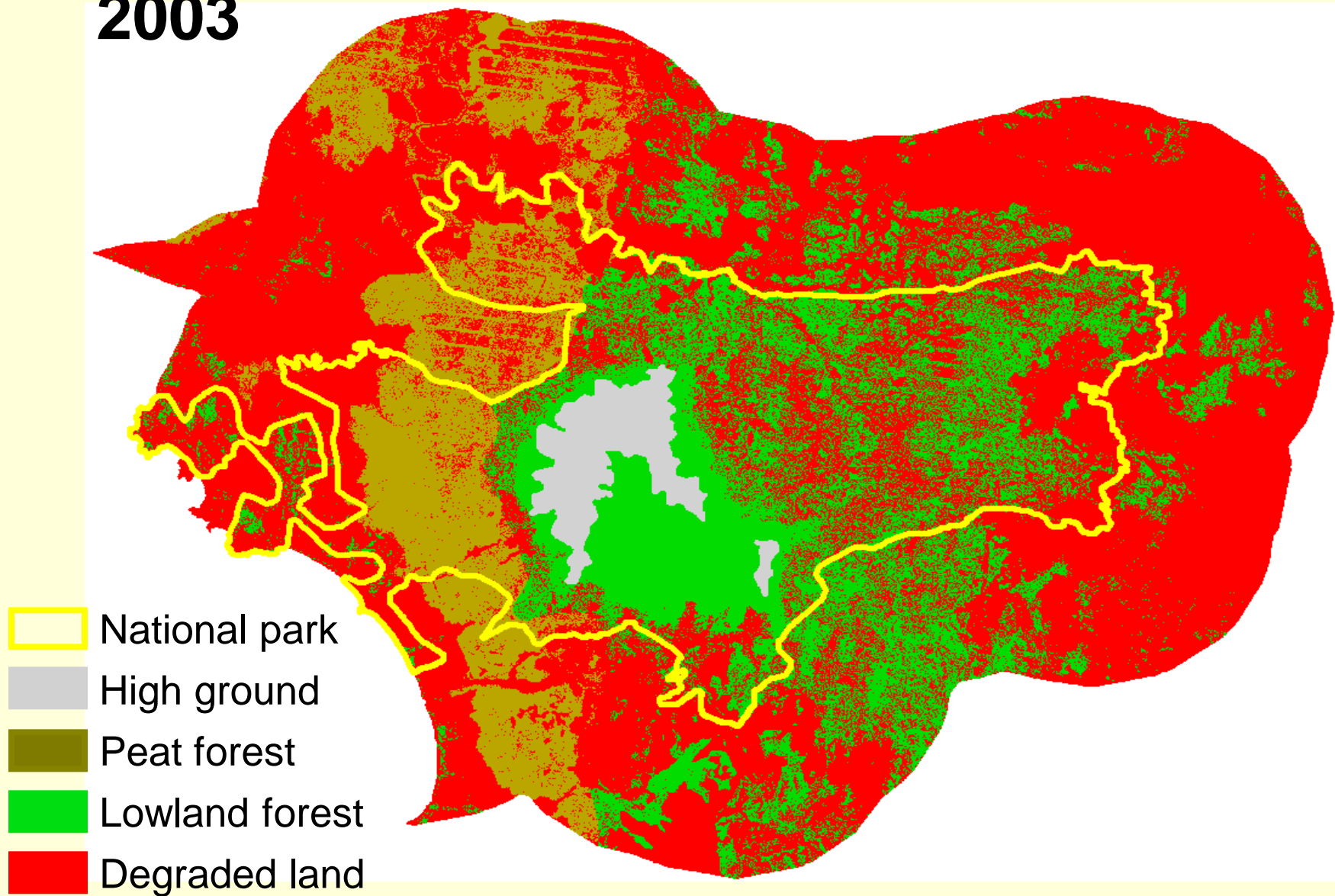


- 70% Park 10 km Buffer Deforested; <9% intact;
- 38% Park Lowlands Deforested;
- After 1999, when <26% buffer remained; deforestation within park rose 9.5% yr⁻¹; $r^2 = 0.99$)

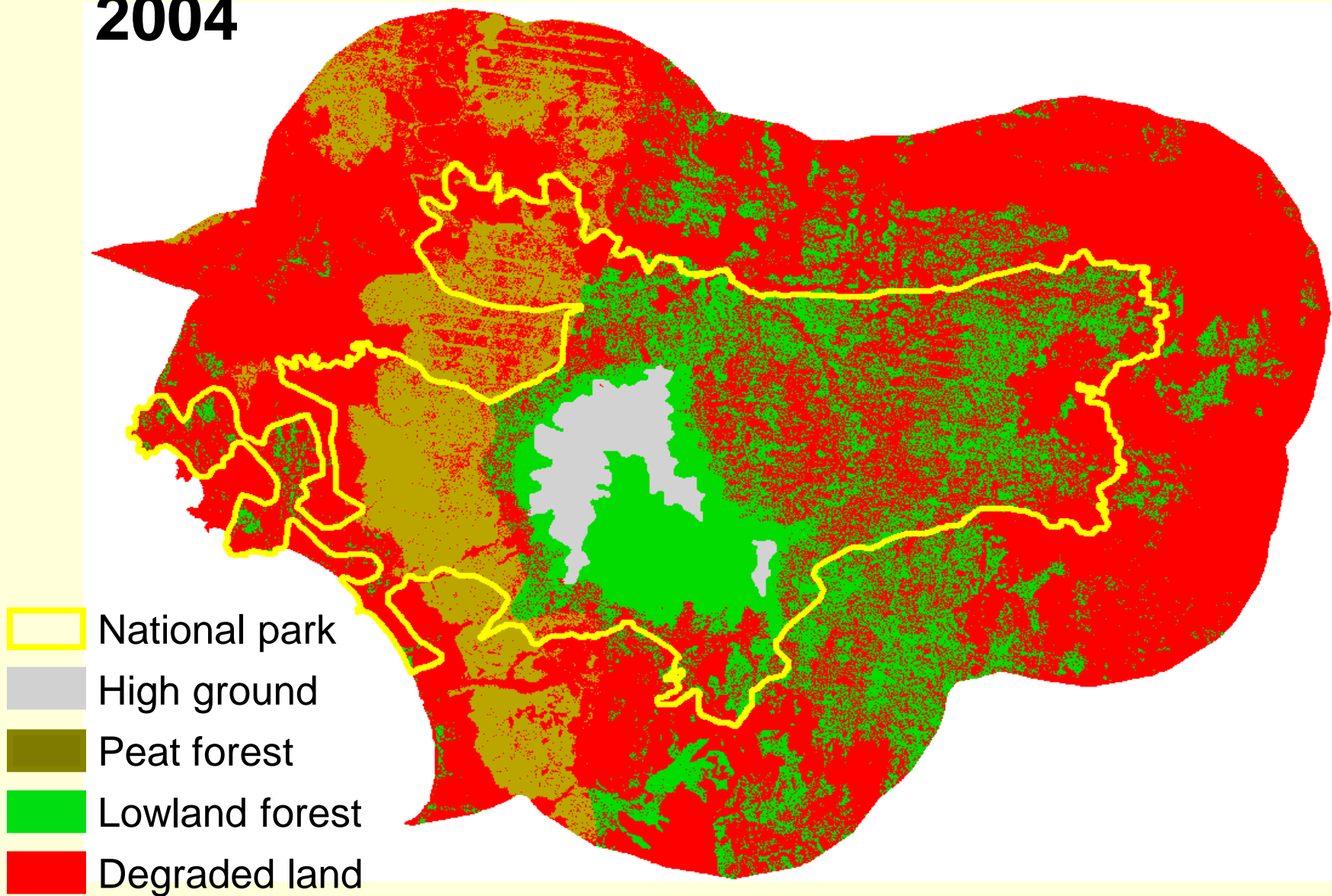
Land use



2003



2004



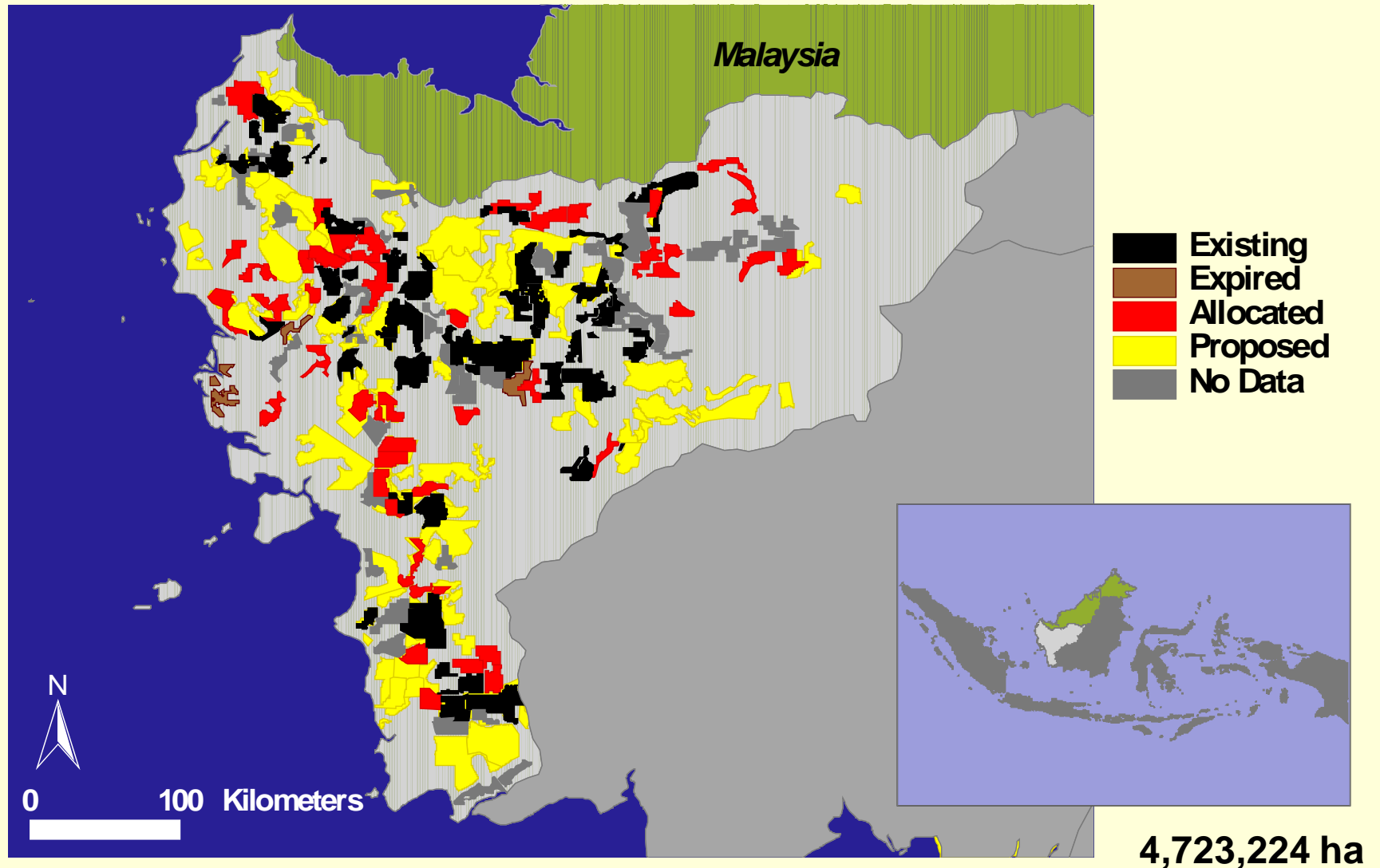
Industrial Oil Palm Proliferation

40-fold increase area since '92



Clear logged forest w 77 to 111 t C ha⁻¹
 1.2 to 10.5 t C ha⁻¹ in 1 to 10 yr plantations

Industrial Plantations in West Kalimantan, Indonesia



Mapping oil palm plantations

Ikonos: resolves individual crowns, but over small areas

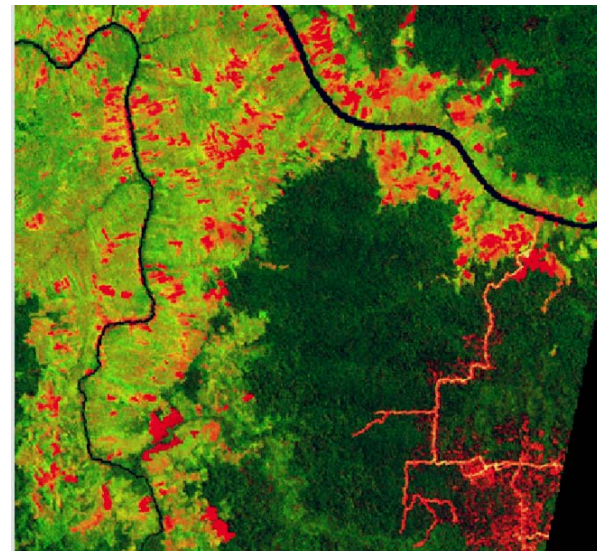


Challenge to mapping oil palm with TM:
Depending on age, oil palm is spectrally confused with bare soil and secondary regrowth.

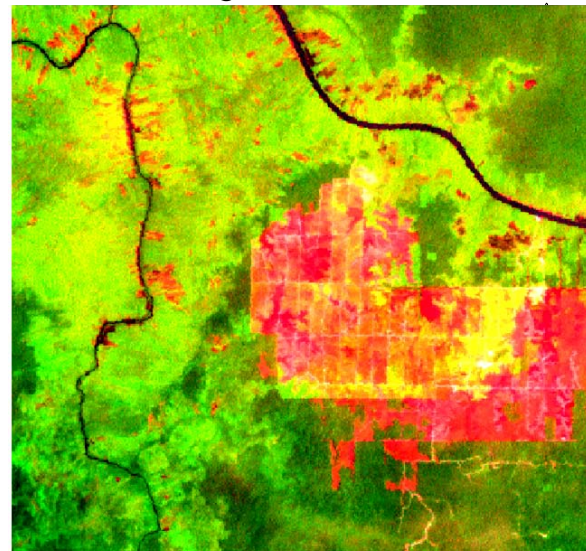
So, to approach mapping oil palm, we:

- train detection methods on known plantations observed on Ikonos
- incorporate into the mapping method:
 - changes observed on TM (1990 – 2000)
 - proximity to dense road networks:

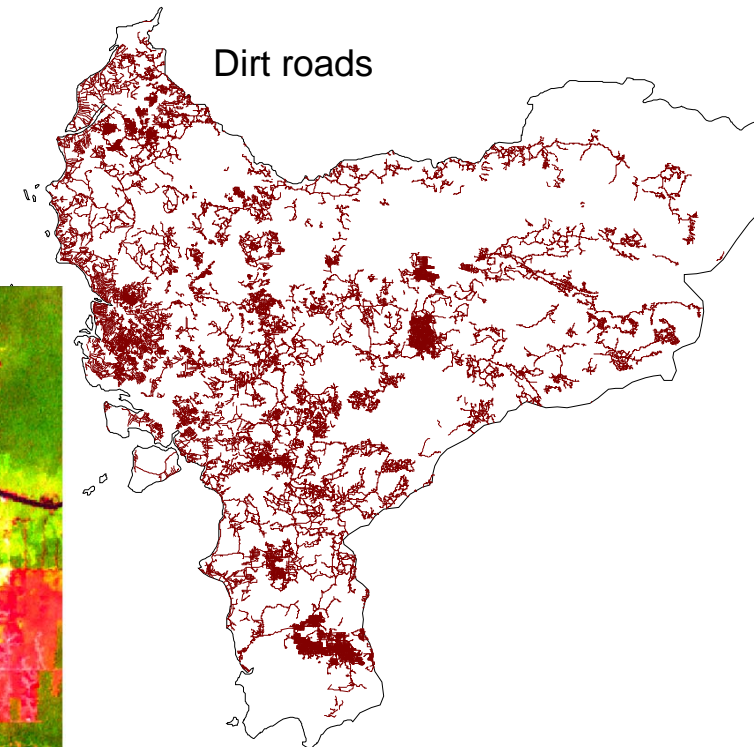
TM: resolves forest conversion and roads over large areas



1992

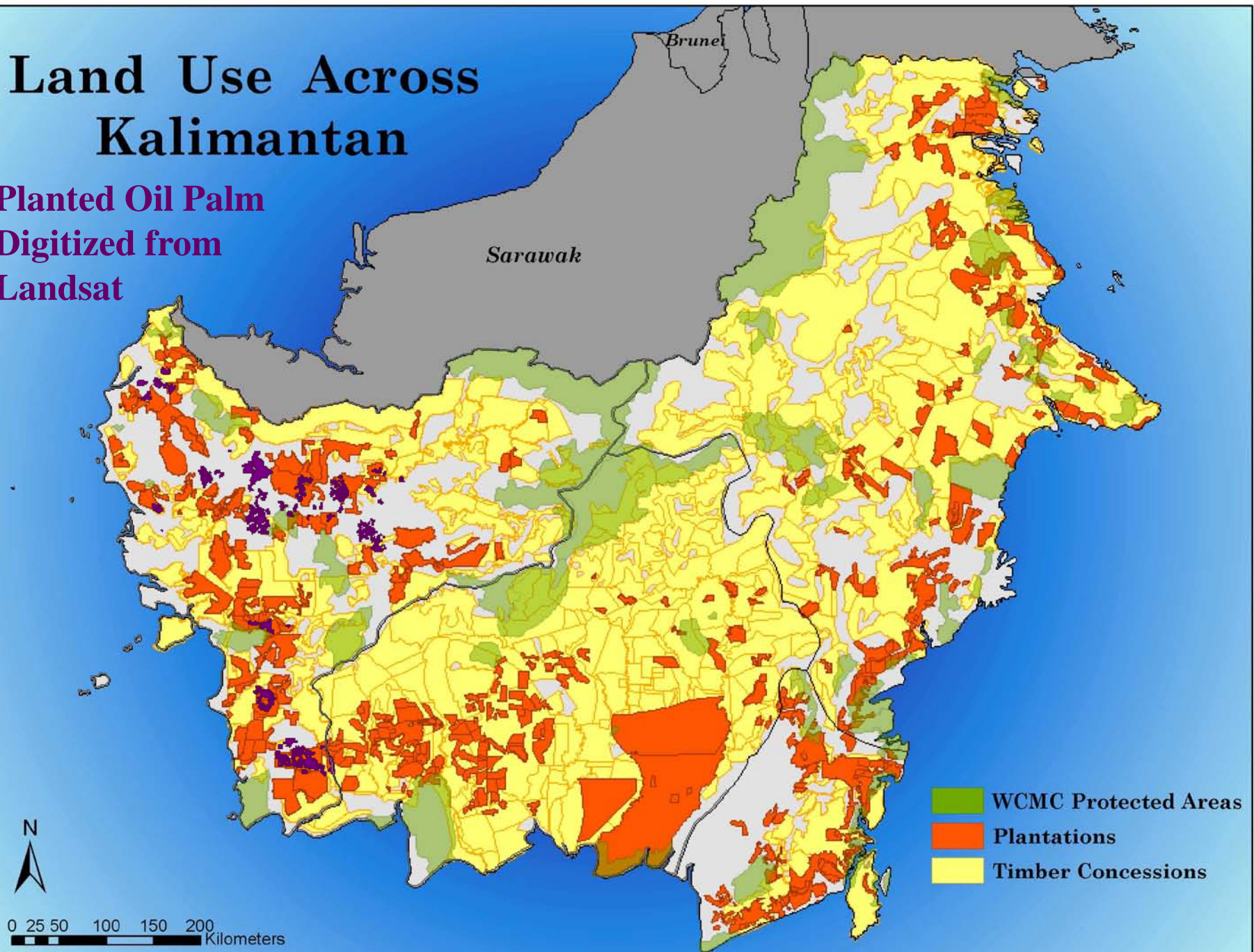


1999



Land Use Across Kalimantan

Planted Oil Palm
Digitized from
Landsat



Applications of Preliminary Results For Policy & Management

- Arrested & convicted 45 logging brokers (15 Malaysians) and confiscated \$3.76M of timber in GPNP; extended throughout Indonesia
- Changed oil palm plantation policy – no longer can clear residual wood for \$\$; governors/regents/district officials/military Kalimantan jailed for corruption
- Banned sawmills and dismantled plywood industry by 70% capacity;
- RS monitoring of concessions/PAs GPS work blocks;
- Consortium Anti-Illegal Logging Corruption
- New Clearing House for Forestry/Plantation Data for corruption and management;
- Designated 1.3M ha new protected areas

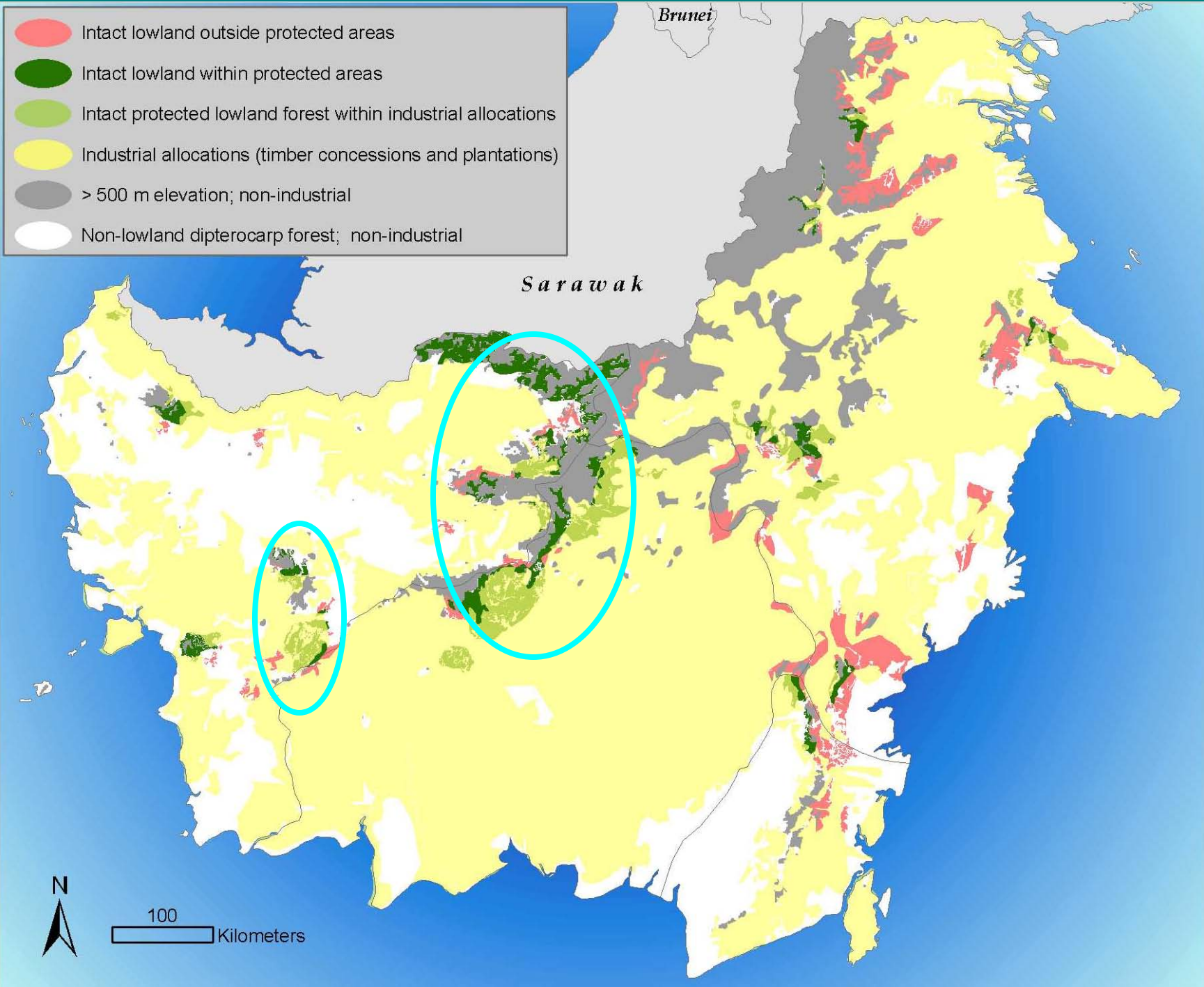
- Intact lowland outside protected areas
- Intact lowland within protected areas
- Intact protected lowland forest within industrial allocations
- Industrial allocations (timber concessions and plantations)
- > 500 m elevation; non-industrial
- Non-lowland dipterocarp forest; non-industrial

Sarawak

Brunei



100 Kilometers



Transnational Management

- Rainforest Action Network/Greenpeace radicals to 161 international companies;
- Forest Integrity Network, TI WWF/TNC & buyers throughout EU/US, China, Hong Kong Taiwan, Singapore etc. Chain-of-Custody agreements, ports, \$\$ laundering;
- Listed Ramin (Timber from Peat Forests) on CITES (w Indo/US)

SBY's "War on Corruption"



- First Democratically Elected President of Indonesia 20 Oct 04
- First 100 day agenda – War on Corruption
- Illegal Logging and Land use is top priority;
- Independent Council with Judiciary and Enforcement

President Susilo Bambang Yudhoyono declared war on illegal logging on 12 Nov 04 by arresting senior bureaucrats, soldiers and police who were involved in the trade.

Susilo declares war on corruption

Fabiola Desy Unidjaja
The Jakarta Post/Jakarta

President Susilo Bambang Yudhoyono declared a national action plan against corruption on Thursday, urging all state officials to avoid family businesses and to ensure transparency in all state affairs.

On the same day, the Corruption Eradication Commission (KPK) signed an agreement with all 33 provincial governors, under which they pledged to report their wealth and support the commission's efforts to curb corrupt practices in their regions.

"The level of corruption in our country is very alarming, and I urge every state official to lead by example in fighting corruption. We have to

learn to be fair, honest and transparent in every action," Susilo said in his 45-minute speech marking the beginning of the nation-wide anti-corruption drive.

The country's national anti-corruption plan was spelled out in Presidential Instruction No. 5/2004 issued by the International Anti-Corruption Movement on Thursday.

Eradicating corruption has been Susilo's driving theme since the presidential election campaigns, and since taking office on Oct. 20, he has been trying to demonstrate his commitment to this endeavor.

The first major case was the recent detention of Aceh Governor Abdullah Puteh by the KPK. The President has agreed to suspend Puteh as soon as he sits as defendant

in court.

KPK chairman Taufiqurrahman Ruki said at the ceremony that the KPK had asked the President to suspend every state official as soon as they had been declared as suspects in any corruption case.

"We have all the legal weapons needed to end corrupt practices and we urge the President to suspend state officials who have been declared suspects in corruption cases," Taufiqurrahman said.

Meanwhile, presidential spokesman Andi Mallarangeng said that Susilo had just signed letters allowing police and prosecutors to question two governors, six House of Representatives members, four regents and two mayors.

The two governors were Banten's Djoko Muanandar



ANTI-GRAFT DECLARATION: Residents of Makassar warmly welcome People's Consultative Assembly (MPRI) Chairman, Hidayat Nurwahid, who is visiting the South Sulawesi capital. On Wednesday Hidayat attended a ceremony to launch what is being called the South Sulawesi Movement Against Corruption, at the Mandala Monument in Makassar.

Govt to take over TNI businesses

Minister of Defense Juwono Sudarsono said on Wednesday that the government would take over military business enterprises that have assets worth Rp 5 billion (US\$550,000) or more, while smaller ones would continue to be owned by the Indonesian Military.

Speaking during a hearing with the House of Representatives' defense commission, Juwono said that the enterprises taken over by the government would be converted into state-owned companies.

"The smaller ones will not be taken over. They will still be owned by the TNI to help fulfill the soldiers' needs," Juwono said, referring to the Indonesian Military.

The assets of the business enterprises owned by the military range between Rp 1 billion and Rp 5 trillion.

The TNI Law (No.32/2004) strictly bans soldiers from getting involved in any business activities. The law also says that all TNI activities and needs are to be financed out of the State Budget.

The TNI law, signed by former president Megawati Soekarnoputri on Oct. 16, also stipulates that the government must take over all business activities of the TNI within the next five years.

It was not surprising, therefore, that Juwono's statement immediately drew strong reactions from legislators attending the hearing.

Djoko Susilo of the National Mandate Party (PAN) said that as long as soldiers continued to be involved in business, efforts to build up a professional military would be difficult to realize.

"We do not want soldiers to engage in busi-

Kurniawan Hari
The Jakarta Post/Jakarta

ness while at the same time forget their military responsibilities," Djoko said.

Effendi Simbolon of the Indonesian Democratic Party of Struggle (PDI-P), meanwhile, said that Juwono's statement was a personal opinion and therefore could not be used as a reference.

He said that the minister would possibly carry out the reform by focusing on businesses that have assets of more than Rp 5 billion.

Juwono said he had floated the idea simply to stimulate discussion on the TNI's business activities. He also said that he would meet with State Minister for State Enterprises Sugiarto to discuss the issue.

During a hearing with the defense commission last week, TNI chief Gen. Endriartono Sutarto acknowledged that the TNI's business enterprises contributed 70 percent of the TNI's budget. During the hearing, legislators urged the TNI to make moves to comply with the TNI law.

Responding to the demand, Endriartono said that the TNI had asked an independent auditor to audit the military's businesses.

"We will report the results of the audit to the House," he added.

Meanwhile, defense observer Kusnanto Anggoro from the Centre for Strategic and International Studies (CSIS) said that building up a professional TNI was essential.

He said that in its current state, the TNI would be able to perform optimally in defending the country's territorial integrity.

Kusnanto added that the main problem in the TNI was not the amount of money it received but rather transparency and accountability in the way it spent this money.

Selected military businesses		
Companies	Assets Controlled by	
PT Indotrada Tengah	116 billion	Army
PT Yekha Timber	7 billion	Army
PT Sumber Mas Timber	36 billion	Army
PT Bara Adha Graha	5 billion	Army
PT Asuransi Indonesia	689 million	Air Force
PT Pula Trading		Navy

Source: ICW/TNI

Court orders release of files in Britain-Indonesia arms probe

Agence France-Press
London

A British court has ordered the release of files disclosing payments by a leading British arms company to the daughter of former Indonesian president Soeharto, the *Guardian* newspaper said on Thursday.

The High Court of Justice ruled that the *Guardian* should be allowed access to the court file containing witness statements by the then chief executive of Alvis, a tank manufacturer based in Coventry, it said.

The *Guardian* has reported allegations that Alvis paid 16.5 million pounds (US\$31.9 million) in bribes to Soeharto's eldest daughter to secure a 160 million pound sale of Scorpion tanks in the mid-1990s which were then used for internal repression.

Alvis attempted to keep the documents secret, but the high court eventually ruled that the newspaper could have copies of the material, the newspaper said.

The witness statements formed part of the evidence in an earlier, unreported case in



SITI HARDIYANTI RUKMANA

(www.guardian.co.uk), reveal that Alvis executives tried for years to secure the support of influential people close to the government and the army, it said.

Eventually they were able to hire president Soeharto's eldest daughter, known as Siti Hardiyanti "Tutut" Rukmana, along with another agent, the daughter of a army officer, to get the backing of the army.

The 100 Scorpion light tanks were sold with the promise from the Indonesian

Puteh could face 20 years in jail for corruption

Tiarna Sibero and Nani Afrida
The Jakarta Post
Jakarta/Banda Aceh

Aceh governor Abdullah Puteh will be charged under both the Anticorruption Law and the Criminal Code, which could mean dozens of years in prison, assuming the courts find him guilty.

The indictment says Puteh violated Articles 2 and 3 of Anticorruption Law No. 20/2001 on power abuse to amass personal wealth and Article 55 of the Criminal Code on participation in a crime for his role in the markup of a Russian-made Mi-2 helicopter purchased by his administration in 2002. Each article carries a maximum sentence of 20 years imprisonment.

The Aceh administration bought the helicopter for Rp 12.5 billion rupiah (US\$1.3 million), while the Corruption Eradication Commission (KPK) found that the Indonesian Navy paid only Rp 6.1 billion for a similar aircraft.

KPK member Tumpak Hatorangan Panggabean said Puteh's trial could begin by the end of this month.

Tumpak Hatorangan Panggabean also said that the three prosecutors preparing the indictment against Puteh — Chaidir,

Debetenior also came after the ad hoc anti-corruption court made it clear that the trial of Puteh could start as soon as the KPK was ready to bring Puteh to court.

Meanwhile, in Banda Aceh, Puteh's detention did not affect the daily activities of the provincial administration.

"The detention of the governor has no impact on the continuity of our activities in the office. It's business as usual," the provincial administration secretary Tanhawi Ishak said on Wednesday.

Puteh's detention, instead, was hailed by corruption watchdogs in the province, which vowed to unveil more graft cases involving government officials in the province, which is rich in oil, gas and other natural resources.

"I hope the trial of Puteh will reveal the entire network of corruption involving Aceh officials," said Ruffriadi, the director of Aceh Judicial Watch.

Deputy speaker of Aceh's provincial legislature Teungku Raihan Iskandar LC hoped Puteh's trial would not be tainted by government or political interests.

"We, Acehnese, feel ashamed by the case. If he is innocent, his name should be restored, but if he is guilty,

Governor grilled for nine hours over graft

The Jakarta Post
Paling/Banda Aceh/Banda

After helping jail almost all members of the West Sumatra legislative council in a collective graft scam last May, prosecutors here on Wednesday questioned Governor Zainal Bakar for over nine hours in the same case.

He was charged with misappropriating Rp 4.5 billion (US\$711.11) of West Sumatra's 2002 budget along with 43 of the 55 councillors who were sentenced on May 17, 2004 to up to two years and three months in prison.

Zainal arrived in a Kijang van at the provincial prosecutor's office at about 8:30 a.m. for questioning, accompanied by his lawyer Handra Dedi Hasto.

Dozens of West Sumatra administration officials, including the heads of several bureaus, were waiting for the governor at the prosecutor's office and escorted him into the investigation room.

Journalists were originally prevented from covering the event, but were eventually given a brief opportunity to take pictures of the governor before his questioning began.

"It (the investigation) is the proper way to prove whether or not the governor is involved in the case. We leave it up to the prosecution," Handra said.

Zainal was named a suspect in the scam on Oct. 23, 2004, five months after the Padang District Court convicted the 43 councillors, who remain free pending their appeals.

President Susilo Bambang Yudhoyono gave his consent on Nov. 26 for the West Sumatra prosecutors to summon Zainal.

Zainal is among scores of officials who are suspects in corruption cases across the country which is ranked by German-based watchdog Transparency International as one of the world's most corrupt.

On Tuesday, Nanggroe

Corruption cases handled by Jakarta Police

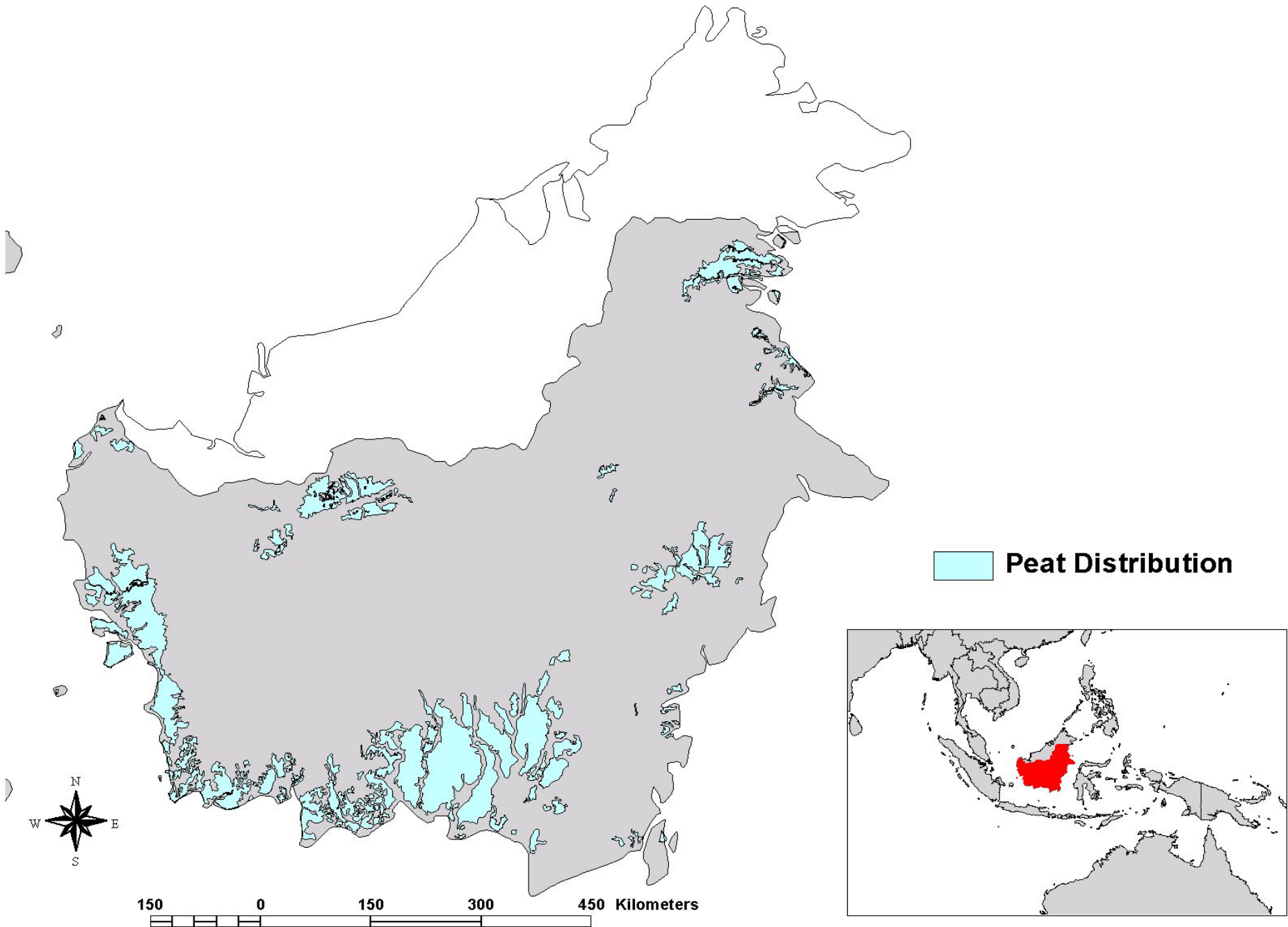


No.	Case	Suspects	Losses	Progress
1.	Poverty alleviation fund in South Jakarta	Liik Hasanudin	Rp 134m	Handed over to prosecutor's office
2.	BNI Pondok Indah	Mochamad Supedi Nurhathjo Zunooc Mukhlis Budianto Moeljibur Rahman Alfonsius Weheb	Rp 46.46b	Dossiers being completed
3.	Depok Council	19 councillors of 1999-2004 period	Rp 9b	Dossiers being completed
4.	BRI Central Jakarta	Gun	Rp 9.4b	Under investigation

Source: Jakarta Police

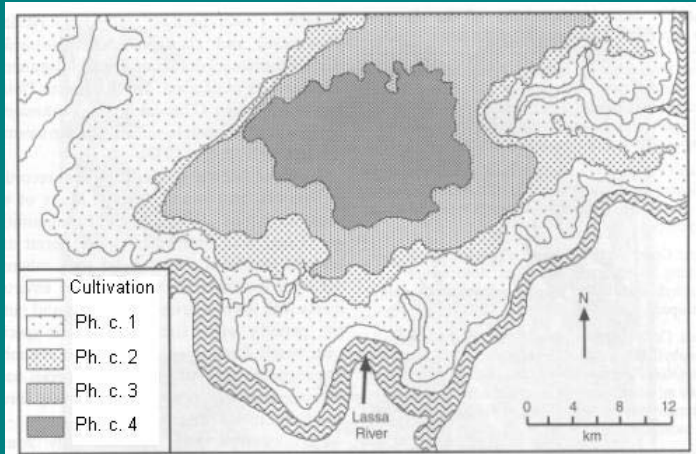
JPI/ Budi Sudarmo

Distribution of Peat in Kalimantan



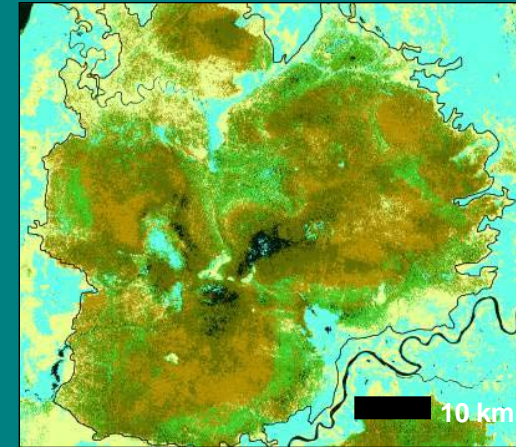
Estimating peat depth from phasic zonation

A) Idealized zonation of phasic zones

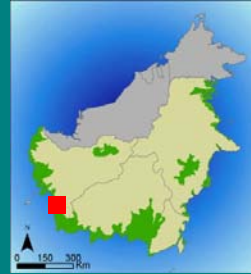


Source: Brunig, 1990.

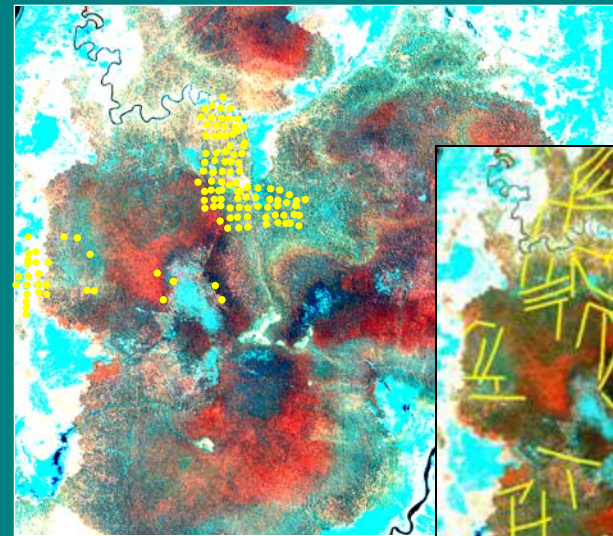
D) Zonation classified from ETM+



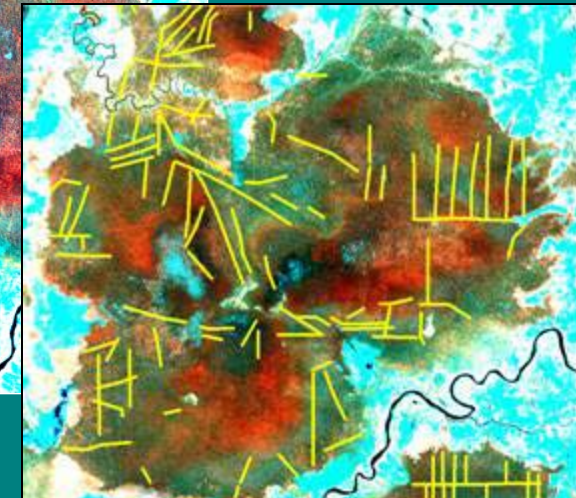
C) Location map



E) Peat condition, biomass, depth: preliminary surveys

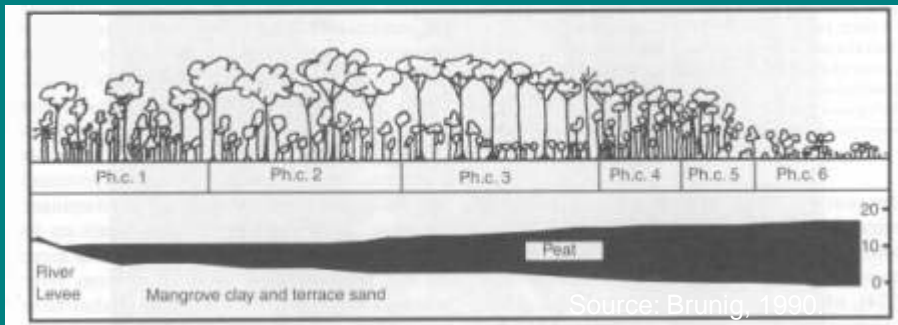


F) Log skid trails: Zone:123



RGB = ETM+ 4,5,7

B) Relationship between zones and depth



Source: Brunig, 1990.

Work in Progress

- Model past, present and future carbon dynamics in the region;
- Integrate with effects of LCLUC on biodiversity;
- Continue to assist policy and regional land use planning and fire prevention with Indonesian collaborators

Training & Outreach

Education

- 12 US based Master's students,
- 45 Indonesian students, + 8 in progress Jan-August
- 2 Ph.Ds completed

Outreach

- 4 field training courses for 14 Kalimantan based NGOs and local civil servants
- Several workshops with total of 210 Indonesian participants;
- Presentations to USAID, World Bank, Indonesian President's Corruption Eradication Committee; Ministry of Land Use Planning, Forestry, Environment and Parks and Protected Areas, US State Dept
- Planned March 05 Hong Kong "Timber Buyers of Asian Wood: Chain-of-custody
- Planned May 05 Singapore "Protected Area Management Malay Archipelago"

Land Use Planning and Development BAPPENAS Dedy and Herman Heruman, Ning, BAPPEDA-KALBAR, Eka, Rusnawir Hamid, Nova Sirait, Department of Parks and Conservation (PKA) and national parks; University of Tanjungpura and Dean of Forestry, Heru were collaborative sponsors.

Eighteen timber concessions and seven oil palm plantations granted access and logistic support during surveys, local NGOs Biodamar, YPPN, WWF-Kalbar conducted community surveys and mapping, Over 45 Indonesian students and eight faculty from University of Tanjungpura, KALBAR and six local NGOs participated in the surveying and mapping from 1999-2004.

Financial Support: NASA Earth Sciences Program, US Agency for International Development (USAID), World Bank (Indonesian Mission), NSF BE-CNS, Fulbright Foundation, Conservation Food and Health, Tropical Resources Institute, Santa Fe Institute, Southeast Asian Studies and International Studies, Yale FES, University of Michigan

