The Burning Issue: Fire and Conservation in C. Kalimantan

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- WORKSHOP -
“DEVELOPING INTERNATIONAL COLLABORATIONS TO ADDRESS FIRE OTHER CONSERVATION ISSUES IN CENTRAL KALIMANTAN, INDONESIA”

18-19 October 2017, University of Exeter, Penryn Campus, Cornwall, UK
Where are we?
Where in Borneo?
Borneo:
• 15,000 species flowering plant (4% global total)
• 3,000 species tree
• 222 mammal and 420 bird species (5% global total)
• Inc. 13 non-human primates, 8 of which endemic
Gambut merupakan tangki penyimpanan air dan menjadi sumber air di Kalimantan. Air menggenangi gambut, menahan karbon tetap berada pada gambut dan tidak terlepas ke atmosfer.
Fig. 2 Trajectory of forest loss for Borneo as predicted by a spatial deforestation model based on 2000–2010 trends.
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Penebangan hutan dan drainase (pembuatan kanal) menyebabkan gambut menjadi kering. Gambut yang terpapar langsung oleh sinar matahari menyebabkan pelepasan karbon.
Gambut yang kering sangat rentan terbakar di musim kemarau. Ketika kebakaran terjadi, gambut akan melepaskan karbon dioksida sangat banyak dan menjadi penyebab utama perubahan iklim global.
Borneo’s peat fire problem

• Peat fires in Indonesia now an annual event

• Linked to dry weather → worse in El Niño years (e.g. van der Werf et al., 2008)
  – 1982/83 – strong El Niño, impacts less severe?

• 2015 – strong El Niño → LOTS of fires!
  – Kalimantan, Jun-Oct: 51,661 hotspots, 53% on peat (GFW)
  – Kal + Sum + Papua (Loburger et al., in press):
    • Est. 46,046 km² burned
    • 37% on peat
    • 3.2% land area

• La Niña this year; El Niño next?
Fire impacts

• Carbon:
  – Annually, Borneo: 74 ± 33 Mt C (van der Werf et al., 2008)
  – Kal + Sum + Papua: 0.89 Gt CO₂e (Loberger et al., in press)
  – England’s peat store ~ 300 Mt C

• Health:
  – 2015: 43 million people in “haze zone”; 500,000 reported sick (GoI, 2015)

• Economic losses:
  – 2015: ~USD 30 billion (GoI, 2015; World Bank, 2016)
Fire impacts - biodiversity

- Borneo forests: high biodiversity, many threatened spp.
- Forest loss and fragmentation
- Harrison *et al.* (2016, Proc. 15\textsuperscript{th} IPC)
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Fire impacts - biodiversity

• Borneo forests: high biodiversity, many threatened spp.
• Forest loss and fragmentation
• Haze and carbon leaching:
  – Increased river acidity and lower fish captures (Thornton, 2017)
  – Massive peaks in forest leaf fall (Harrison et al., 2007, 2016)
  – Subsequent peaks in butterfly populations when trees replace leaves?
  – Respiratory ailments in animals, e.g. orangutans (BOSF)
  – Reduced gibbon territorial singing (Cheyne, 2007)
  – Reduced visibility to < 10 m
  – Reduced bioacoustic activity in Singapore (Lee et al., 2017)
Why do we have this problem?

- Weather / rainfall – plays a strong role, but not the underlying cause
- Human use of fire – clearing, disputes and claims, carelessness, etc.
Who are Borneo Nature Foundation?

- Est. 1999, aim – maintain and enhance Kalimantan’s ecosystems, biodiversity and benefits provided
- Work areas:
  - On-the-ground conservation
  - Conservation-based research
  - Sustainable livelihood development
  - Capacity building
  - Local and international outreach and education
- Partners:
  - Universities Exeter, Leicester, Oxford Brookes, Kent, Palangka Raya, Muhammadiyah
  - Many other organisations worldwide
  - Local government agencies and communities
- ~50 people employed and ~35 community fire patrol members supported

www.borneonaturefoundation.org
Where does BNF work?
Where does BNF work?

- Barito Ulu
- Rungan
- Sabangau
- Palangka Raya
OuTrop Programme

World’s largest protected population...

and...
OuTrop Programme

Main threats:
• Illegal logging
• Hunting and pet trade
• Swamp drainage
• FIRE!!
Rungan Conservation Programme

Rungan Forest:
- 1,558 km²
- Mix forest types
- 1,300-2,000 orangutans
- Many other threatened species
Barito Ulu Programme

Rekut Research Station:
• 1980s – 2010: University of Cambridge
• Relatively pristine lowland hill dipterocarp forest
• Important gibbon and forest ecology research site
• 2007-09: 107 rescued orangutans released by BOSF
Education & Outreach

Awareness → behaviour and policy change
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• Blog
• Newsletters
• Funders updates
• Annual Report
• YouTube
• Flickr

www.borneonaturefoundation.org

PRESS RELEASE
Embargoed for:
27 August 2014 at 11.00 GMT

Hope remains for Bornean orangutan population reduced by more than half

Borneo’s endangered Bornean orangutan population has recovered by less than a fifth in 40 years, according to research published today in the journal Nature, scientists announced today.

Scientists at the University of Oxford and the Borneo Nature Foundation have been monitoring the orangutan population for 20 years, and their findings show that the population has declined by 58% since 1971. The researchers were able to identify the population through the use of satellite images, which allowed them to track the movement of individual orangutans.

The results of the study were published in the journal Nature. The researchers hope that the findings will help to inform conservation efforts to protect the remaining orangutan population.

The study also highlights the importance of protecting the orangutan’s habitat, which includes rainforests and areas with high biodiversity.

The researchers say that the population is still vulnerable to habitat loss and poaching, and that more work needs to be done to protect the orangutans and their habitat.

“This is a worrying trend, but it is not too late to turn things around," said lead researcher Professor Robert D. W. supermarket. "Our findings show that the population is still present, and that there is still hope for its survival. We need to act now to protect the orangutans and their habitat, and to ensure that their numbers do not decline further."
Why are we here?

• Learn about new work, findings and ideas from delegates
• Meet other people working and conducting research across disciplines in the region (or with an interest in this)
  – Develop and strengthen UK-Indonesia links
• Identify:
  – Important new work areas/research questions that we may be able to help address
  – Potential (new) collaborations between participants to fulfill this
  – Potential new “projects” and funding streams for these
• Outputs:
  – Book of abstracts
  – Potential article
  – Collaborations!
Some Q’s to consider...

- What are the key threats to C. Kal.’s forests and the benefits that they provide?
- What are the drivers of these threats, esp. fire?
- What are the environmental, social and economic impacts of these threats, and how do these interact?
- What don’t we know about these threats, drivers and impacts that is currently reducing our ability to mitigate these?
- How can we fill these information gaps? How could people here help me/my group to fill these gaps?