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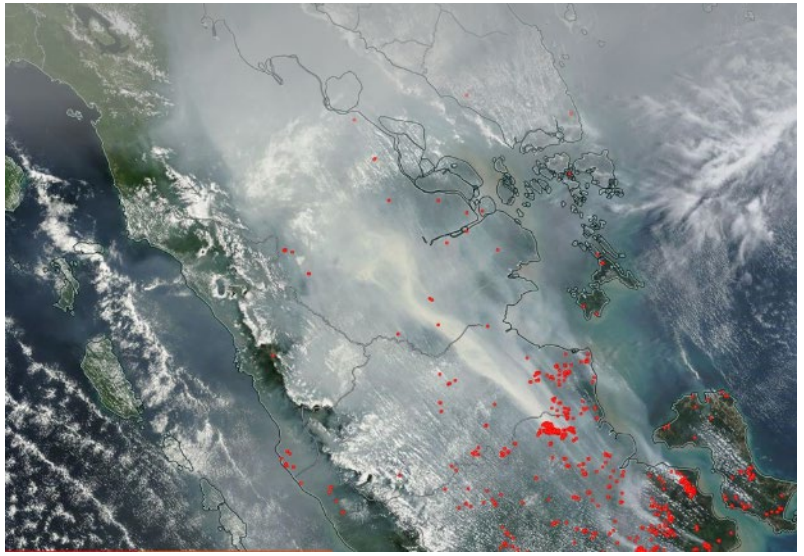
Vulnerable biomes: Tropical peatland fires
Towards solutions



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Resilience : vulnerability of (tropical) peatlands to fire

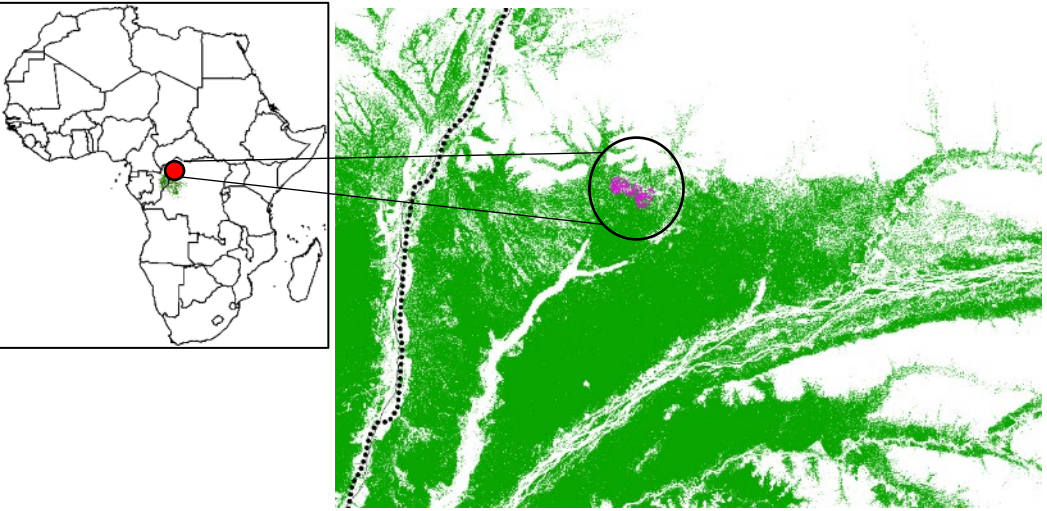
- Resilience primarily determined by hydrology
- Under peat-forming conditions, peat (+ ABG biomass) too moist to allow ignition
- Lowering of peat water table is a strong driver of decreased fire resilience

Resilience : vulnerability of (tropical) peatlands to fire

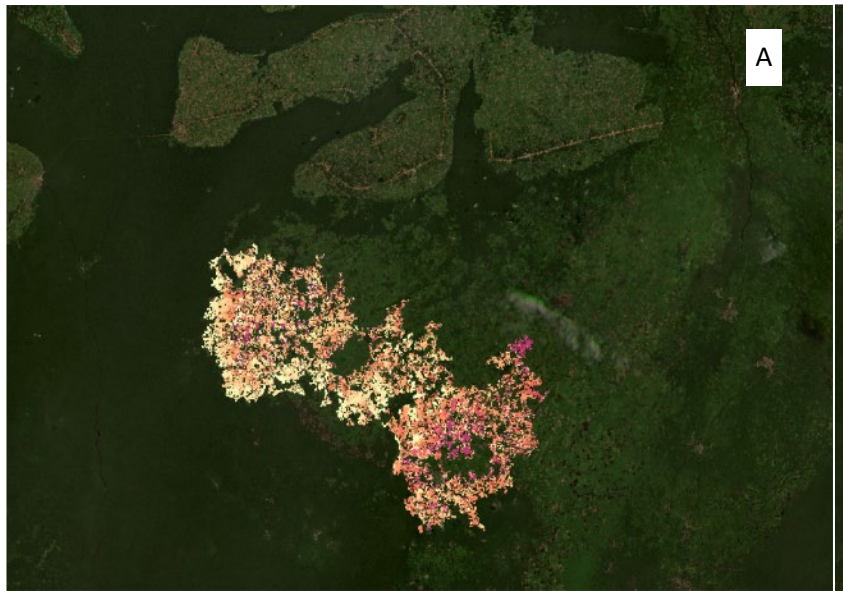
Certain tropical peat landscapes increasingly fire prone

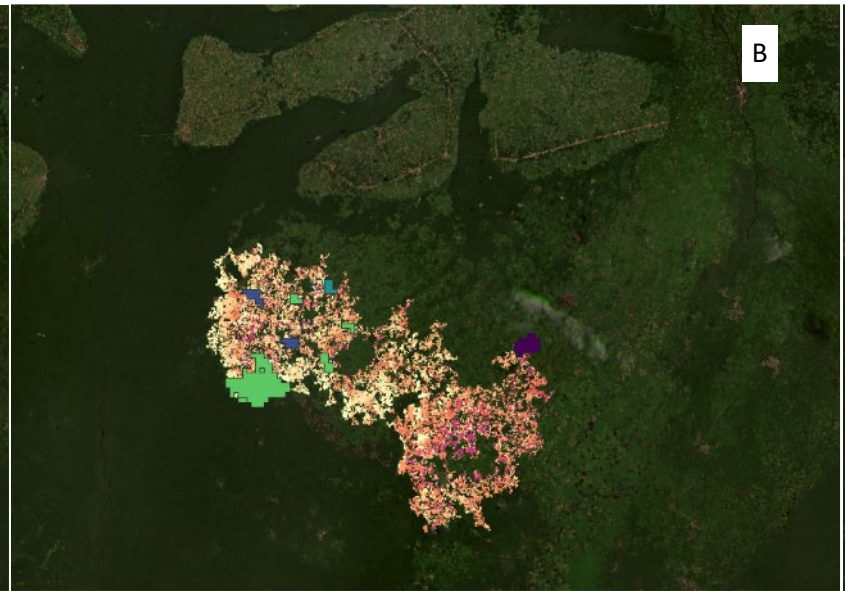
- Reasons?
  - Changes in land use and land management
  - Drainage
  - Presence of (more) flammable vegetation
  - Increasing incidence of droughts : ENSO/IOD, regional climate change
  - Increasing chance of ignitions (accidental/deliberate)

Intact tropical peatlands at low / no risk of fire



What's happening in DRC's largest patch of peatland deforestation (75 km^2)?





Deforestation in 2011

Deforestation in 2021

Area burned in 2011

Area burned in 2018

No evidence of mono-cropping, but lots of small-scale agriculture near-by

Research by Shona Jenkins, University of Edinburgh, S.J.Jenkins@sms.ed.ac.uk

Fire use


Photo © Bjorn Vaughn

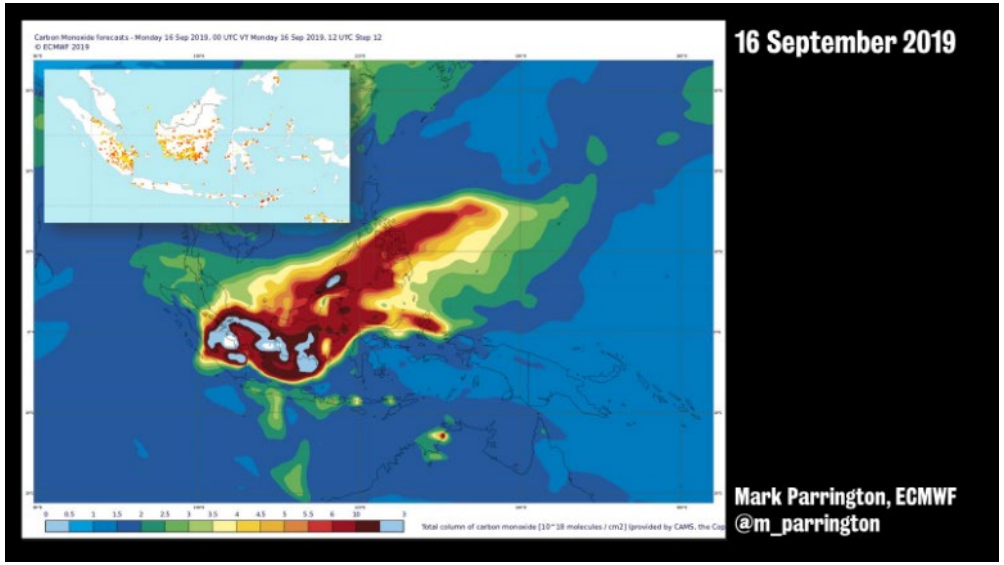
- Traditional land management tool
- Increasingly used at scale – e.g. for plantation development
- Coincident with forest degradation and loss + peatland drainage

- Increasingly flammable landscapes

- Government / company fire ban & controls
- But for some – fire remains part of everyday life

Fire use

- Out of control peat fires
  - Challenging to extinguish
  - Impose massive health, social, economic & environmental burdens
- 2015 fires :
  - $16 Billion cost to Indonesian economy
  - 600,000 people with respiratory disease
  - 100,300 excess deaths (Koplitz et al., 2016)



Carbon monoxide

Solutions

Photo: (Aulia Erlangga/CIFOR)

- Managing fire risk & post fire recovery
  - Reduce fire risk (e.g. fuels, ignition sources) – key role for forest & peatland management
    - Understand uses of fire
    - Promote low/no fire land management – e.g. Fire Free Village initiatives
    - Rewetting / reforestation – key challenge - balancing with livelihood security & fire prevention
- Prepare for increased fire risk (drought, climate change) – limit risk of accidental ignitions
  - Role of fire danger warning systems
- Allow burnt areas to recover – e.g. active fire management for forest regeneration
- **Plan ahead : learning to live with more flammable landscapes**

Keep peatlands wet!

Thank you