Measuring and Monitoring Operational Impact on Biodiversity in a Palm Oil Landscape

RT 13, Kuala Lumpur 17\textsuperscript{th} November 2015

Carl Traeholt
Copenhagen Zoo, Research and Conservation Division
Southeast Asia Programme
Email: ctraeholt@gmail.com
Our activities in SE Asia
The value of RSPO-Certification?
planned changes
planned changes

Sustainability?
Documenting operational impact

Output level

Available safety equipment
Sexual harassment policy
Set aside HCVs
Prudent use of fertilizers

Compliance set-aside is not enough

Paper documentation = check-boxes

Sustain......
Documenting operational impact

**Output level**
- Available safety equipment
- Sexual harassment policy
- Set aside HCVs
- Prudent use of fertilizers

**Outcome level**
- How many injuries?
- How many cases?
- Constant biodiversity in HCVs
- Water quality

- Paper documentation = check-boxes
- On-the-ground documentation = systematic sampling

Sustainability
Put mechanisms in place

- Mainstreaming of the sustainability concept
- Integrate environmental concerns into SOPs
- Mainstream adaptive management processes
- Build up **internal** environmental capacity

**Outcome level**

- OUs, how many and where?
- Management of HCVs
- Baseline biodiversity indexes
- Water quality
- On-the-ground documentation = systematic sampling

*“It is not enough to do your best; you must know what to do, and then do your best”*

*William Edwards Deming*
Documenting the operational impact

- Rarity/diversity index
- Water Quality
- Clean water
- OU population

$N_{spp}$ vs. time

$N$ vs. time
Zoo and United Plantations Bhd
The setup of a Biodiversity Division
GIS in the planning process
GIS in the planning process
Baseline biodiversity surveys
Baseline biodiversity surveys
Baseline biodiversity surveys

BioD in UP / PTSSS

Number of species

Trees | Fish | Amphibians | Snakes | Mammals | Birds
The ecology of leopard cats
The ecology of leopard cats
The ecology of cobras
The ecology of cobras
The rehabilitation process

• Collected ~70,000 seedlings from 83 species
• Set up preliminary test plots to study various out-planting scenarios
• Purchased ~20,000 seedlings (cost = IDR 1500-2500 per unit)
• Out-planted ~30,000 seedlings
The rehabilitation process

Penaga (*Mesua sp*)

Rengas (*Gluta renghas*)

**Height (cm)**

- **Plot A**
- **Plot B**
- **Plot C**

**Diameter (mm)**

- **Plot A**
- **Plot B**
- **Plot C**
The rehabilitation process
(Micro-) climate
Adaptive management approach

- **Planning**
  - Plantation planning
  - Plantation operation

- **Implementation**
  - Maintenance of ecosystem services

- **Mitigation**

- **Monitoring**

- **Evaluation**

- **Sustainable production**

- **Baseline surveys**
Drones.....but of course
Drones.....hmmmmm?
“We came all this way to explore the moon, but the most important thing is that we discovered the Earth”

William A. Anders (Apollo 8)

Thank you!