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**Attachments**  [GAR16A-08-04-2011-ConservingHighCarbonStockForests.pdf](#)  
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# Conserving High Carbon Stock Forests

Presentation at RSPO GHG WG2 on 8 Apr 2011



Prepared by Geoff Roberts & Lee Jweetat

7 Apr 2011

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# Content

1. GAR Forest Conservation Policy (FCP)
2. Conserving HCS and requirements for success
3. Implementation process
4. Moving forward

# GAR Forest Conservation Policy

- Golden Agri Resources (GAR) announced Forest Conservation Policy (FCP) on 9 Feb 2011, that it wants to ensure a no deforestation footprint in its palm oil operations by:
  - not developing on high carbon stock forests
  - not developing on high conservation value forest areas
  - not developing on peat lands regardless of depth
- GAR continues to:
  - ensure free, prior and informed consent for indigenous and local communities
  - comply with all relevant laws and National Interpretation of RSPO Principles and Criteria
- The FCP applies to all the plantations that GAR owns, manages or invests in regardless of the stake
- TFT is assisting GAR in implementing this policy

# Conserving HCS forests

- GAR will conduct fieldwork in collaboration with TFT and other stakeholders in the first half of 2011
- During fieldwork, a provisional definition of exceeding 35 tC/ha will be used as HCS forest definition
- The provisional 35 tC/ha definition may change as applicable to the industry, and as a result of the fieldwork and after consultations with stakeholders
- GAR will share the results of this fieldwork when finalised
- GAR commits to leading the investigation and to promoting the adoption of this new HCS concept across the palm oil industry

# Requirements for successful forest conservation

GAR recognises that to conserve HCS:

- the Government of Indonesia plays a critical role particularly with respect to adopting new regulations and enacting relevant legislation so as to enable the transformation of the palm oil industry (including establishing and implementing a land swap process)
- key players in the Indonesian palm oil industry should address the conservation policy with respect to HCS
- civil society organisations, local and indigenous communities and other stakeholders must engage in the process to transform the palm oil industry

# Objectives and scope

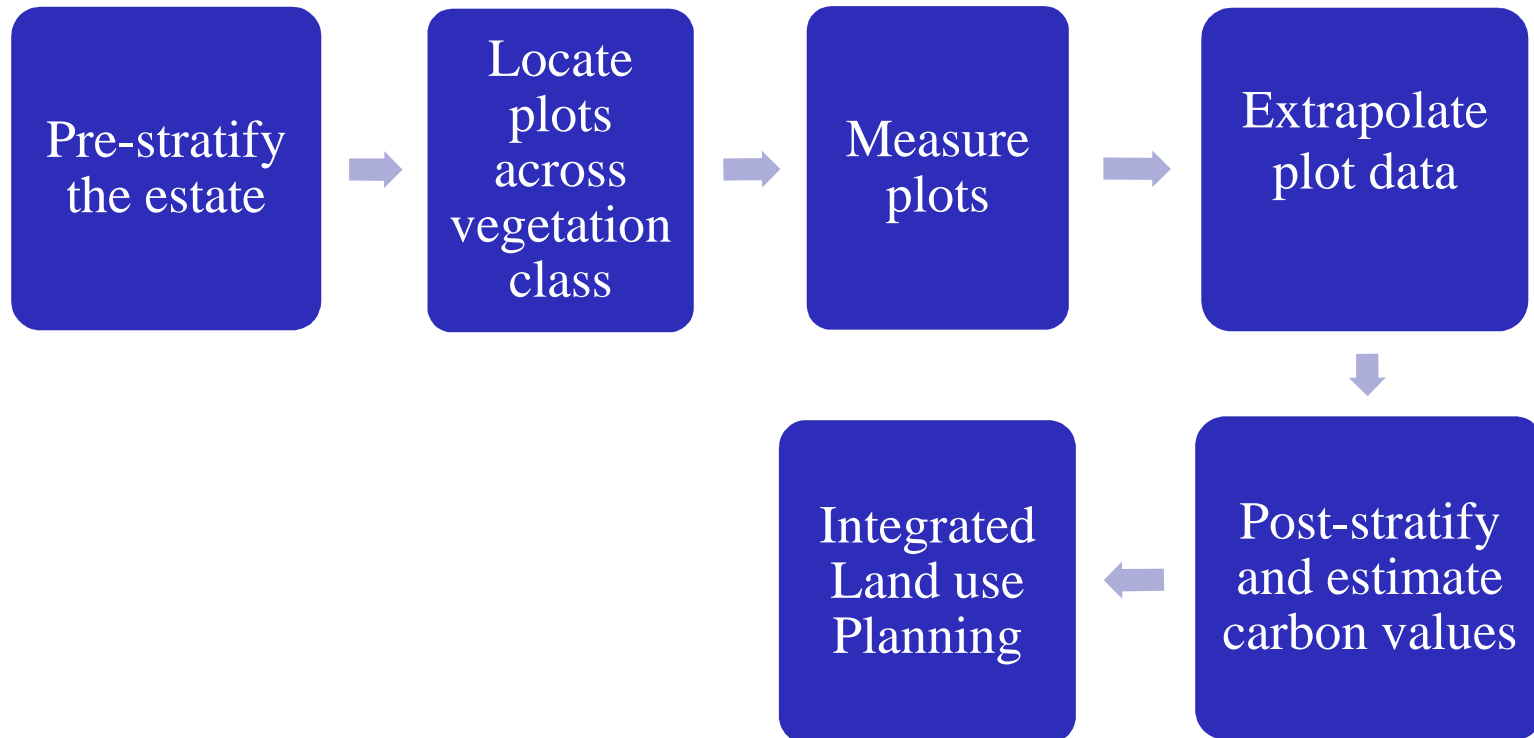
- To introduce a threshold for forest conservation that is:
  1. logical and comprehensible
  2. measurable
  3. implementable
- Ultimately, the conserved HCS area can revert to its natural ecological function as a forest
- HCS provisionally defined as 35 tC/ha
  - accounts for carbon in trees with diameter at breast height (DBH) greater than 5cm
  - excludes planted forests

# Implementation process



- Highly variable vegetation cover
- What is the carbon value for these areas?

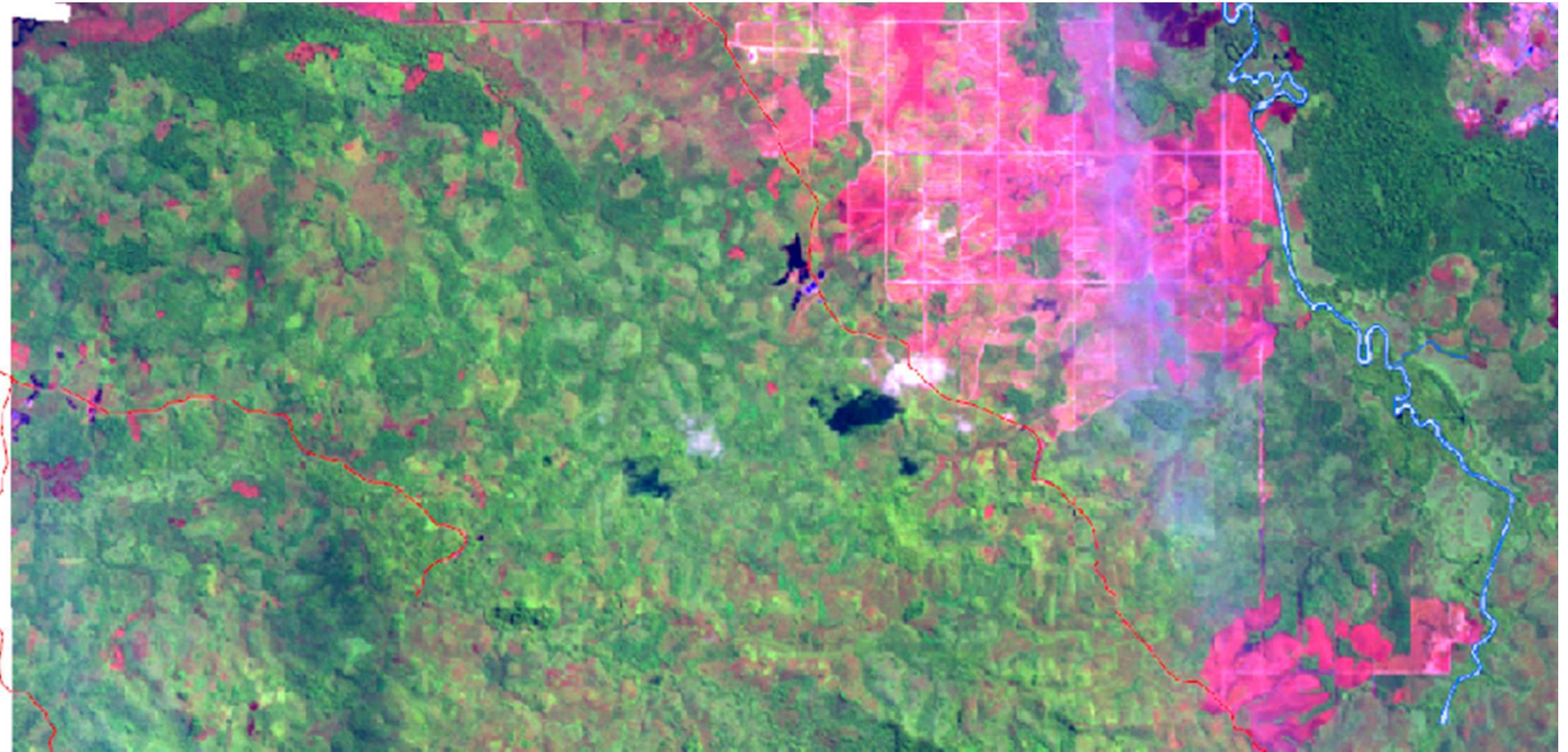
# Steps to identify areas of HCS



# Pre-stratification

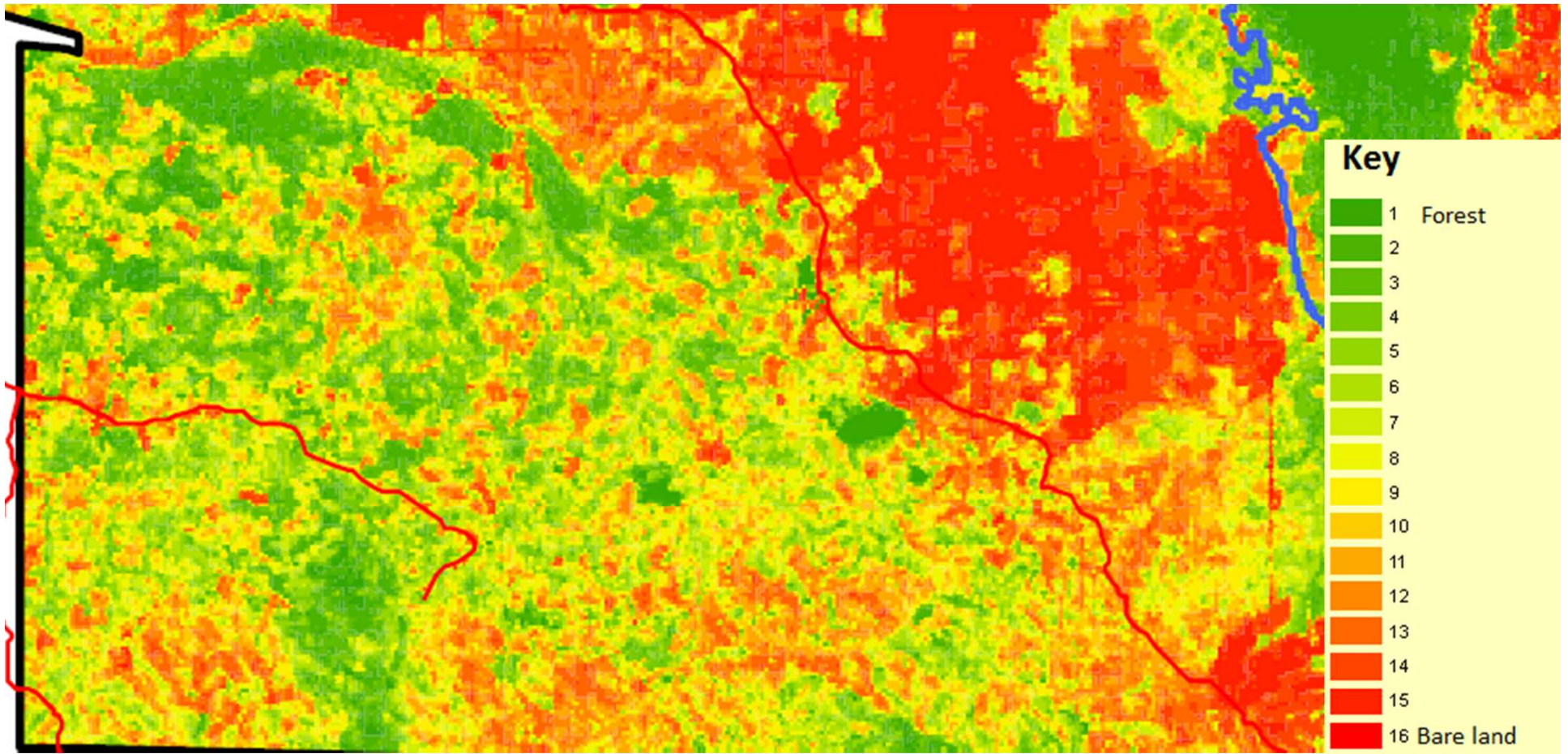
- Fieldwork conducted in PT KPC, West Kalimantan, total 20,000ha
- Stratified by:
  - satellite Image
    - \* Spot 5 data (bands 1,3 and 4)
    - \* July 2009
  - unsupervised classification into 16 classes (anticipate post-stratification to result in 5 – 10 strata)
- Developing a model to identify HCS areas using data from PT KPC that will be tested in other GAR concessions

# Stratification



PT KPC satellite image Jul 2009

# Stratification



PT KPC satellite image Jul 2009 after unsupervised classification process

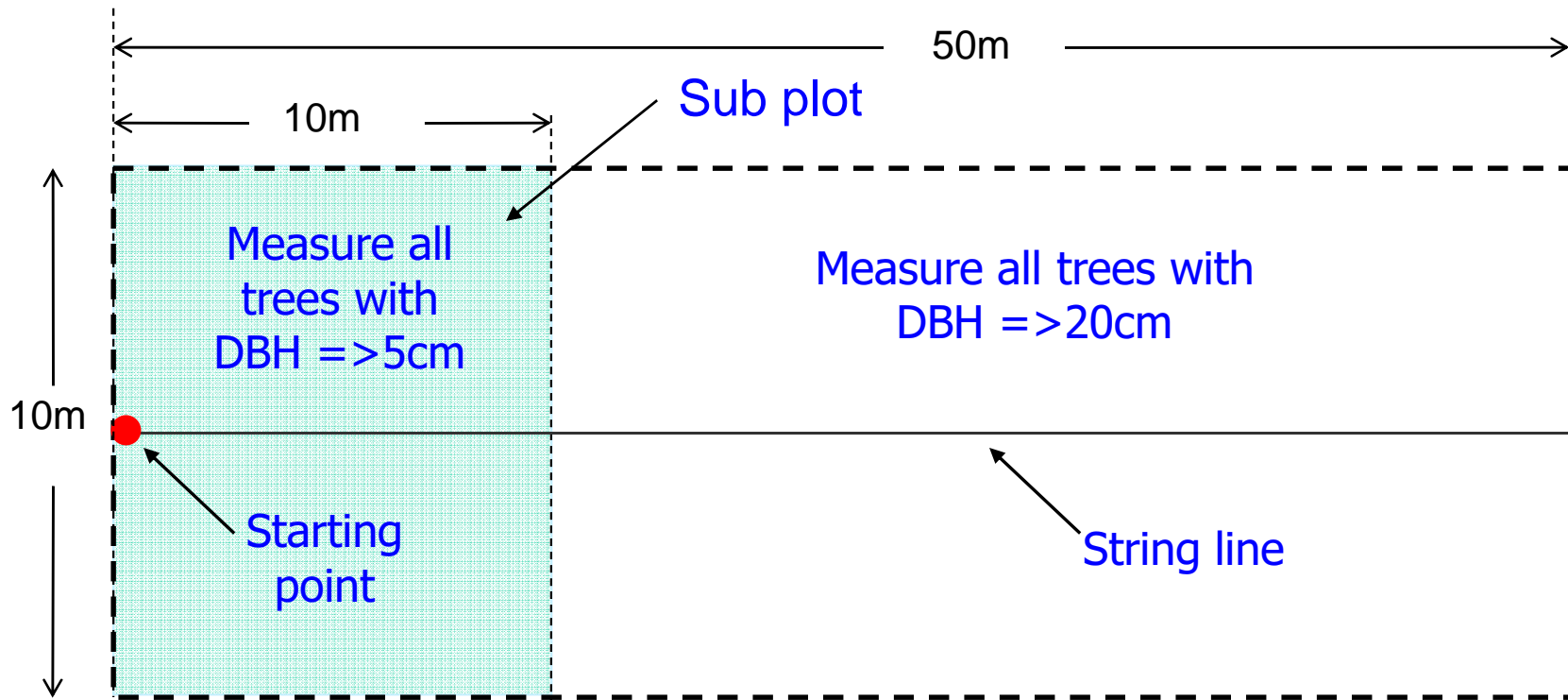
# Plot location

- Transect lines placed across the concession
  - plots located every 200m
- Random plots
  - placed within each of the strata
- Number of plots
  - 254 plots measured over 16 strata



# Nested rectangular plot designs

- A pole is placed at the start of the plot. A 50m string line is extended from the pole
- For the first 10m (sub plot), all trees within 5m of the string line with diameter  $>5\text{cm}$  are measured
- For the entire 50m, all trees within 5m of the string line with diameter  $>20\text{cm}$  are measured



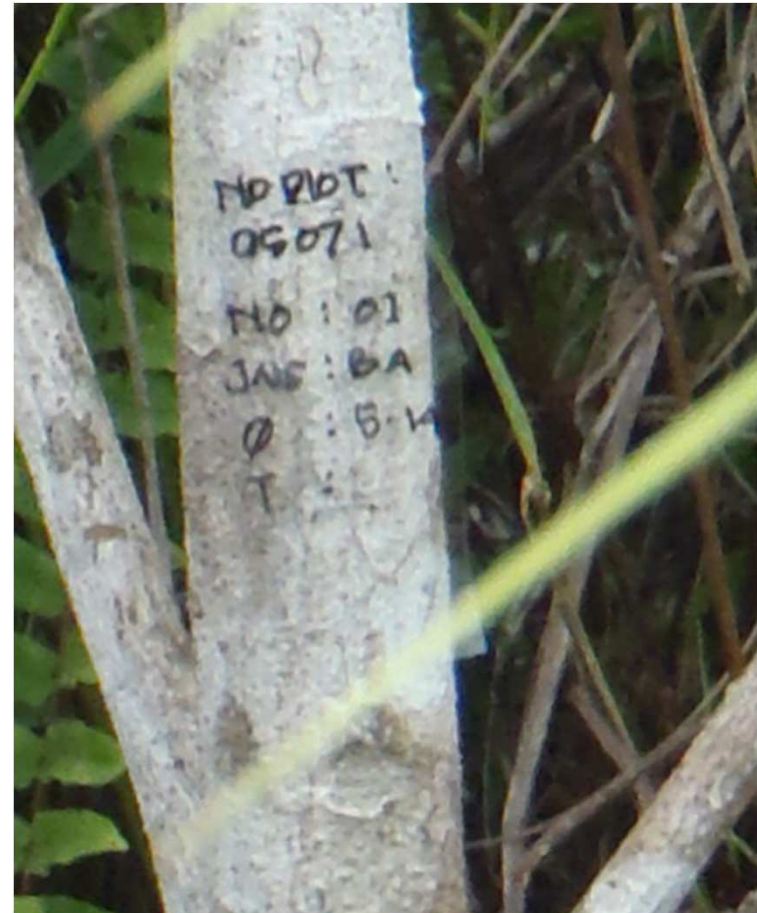
# Plot measurement

- All trees within the plot (all 'in' trees):
  - DBH
  - Species
    - \* Latin, or
    - \* commercial Group, or
    - \* common Name
- Height of 6 trees
  - first and last tree with  $5\text{cm} < \text{DBH} < 20\text{cm}$
  - first two and last two trees with  $\text{DBH} \geq 20\text{cm}$



# Plot data extrapolation

- Appropriate wood density assigned to trees
  - by species (if known)
  - average commercial group (if known)
  - default value for unidentifiable species
- Allometrics (formulas, e.g. *Chave et al 2005*) used for extrapolating carbon
- Testing different allometrics



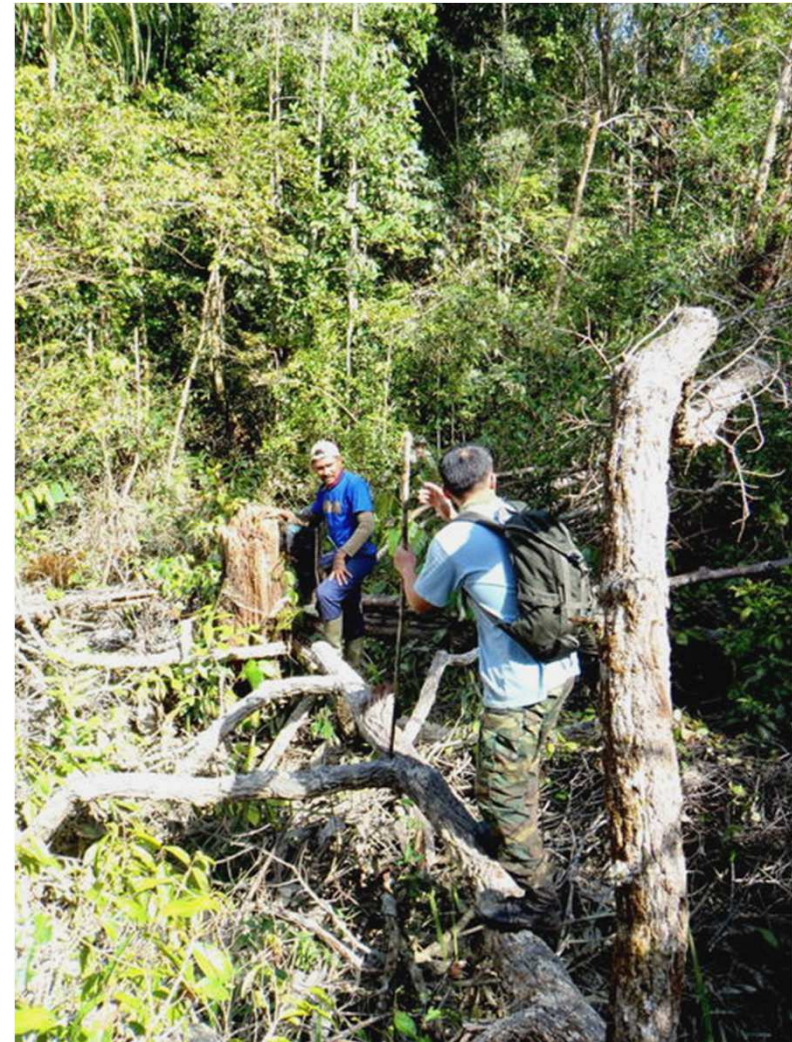
# Data analysis

- Testing approaches
  - regression of carbon against Normalised Difference Vegetation Index (NDVI) and spectral signature of the Spot data
  - carbon allocation by re-grouped strata
- Identifying areas that have more than 35 tC/ha
- Results pending further analysis



# Issues identified

- Too many strata (as anticipated)
  - high variance of carbon values within low carbon strata
- Changes in forest cover since satellite image taken
- Access to measure all areas not possible
  - physical conditions
  - permission not granted by communities



# Moving forward

- GAR will use findings from PT KPC to refine stratification of concessions into fewer classes
- GAR will continue to look for more current, high resolution satellite imagery
- There will be continued socialisation of the project
- Expansion of field work into more concessions to validate the HCS identification process
- Ongoing improvement of methodology



# Thank you

