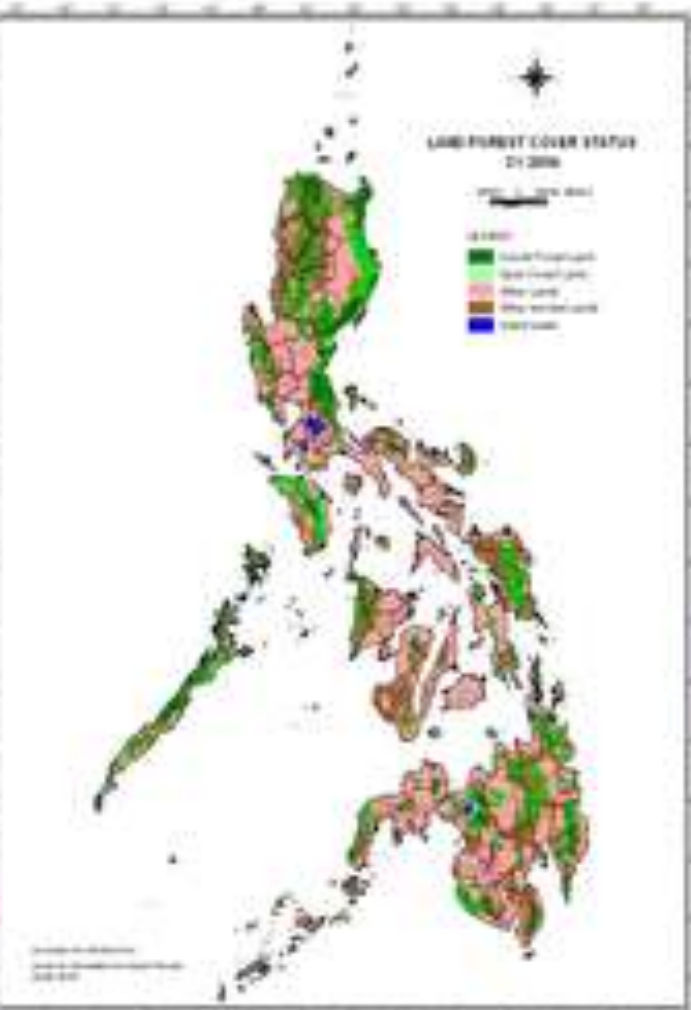


# **INCORPORATING AND UTILIZING SPATIAL DATA AND MAPPING FOR REDD+ AND NBSAPs: The Philippine Experience**

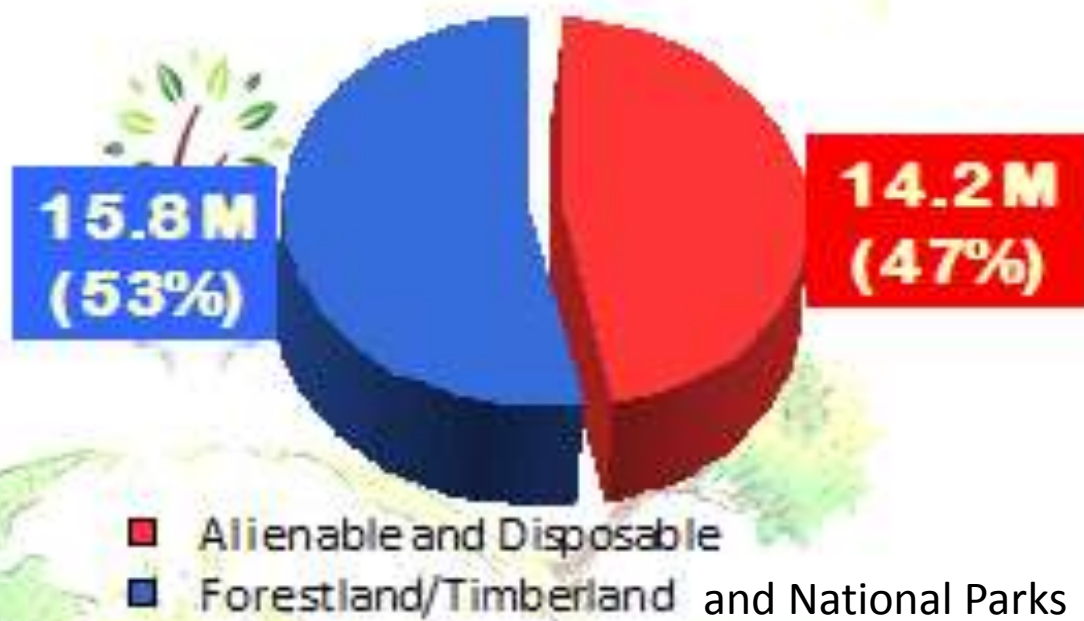
Nilda S. Patiga –Forest Management Bureau  
Armida P. Andres – Biodiversity Management Bureau

Inter-Regional Capacity Building Workshop on REDD+ and Aichi Biodiversity Targets  
San Jose, Costa Rica  
August 29-31, 2014

# Total Land Area of the Philippines

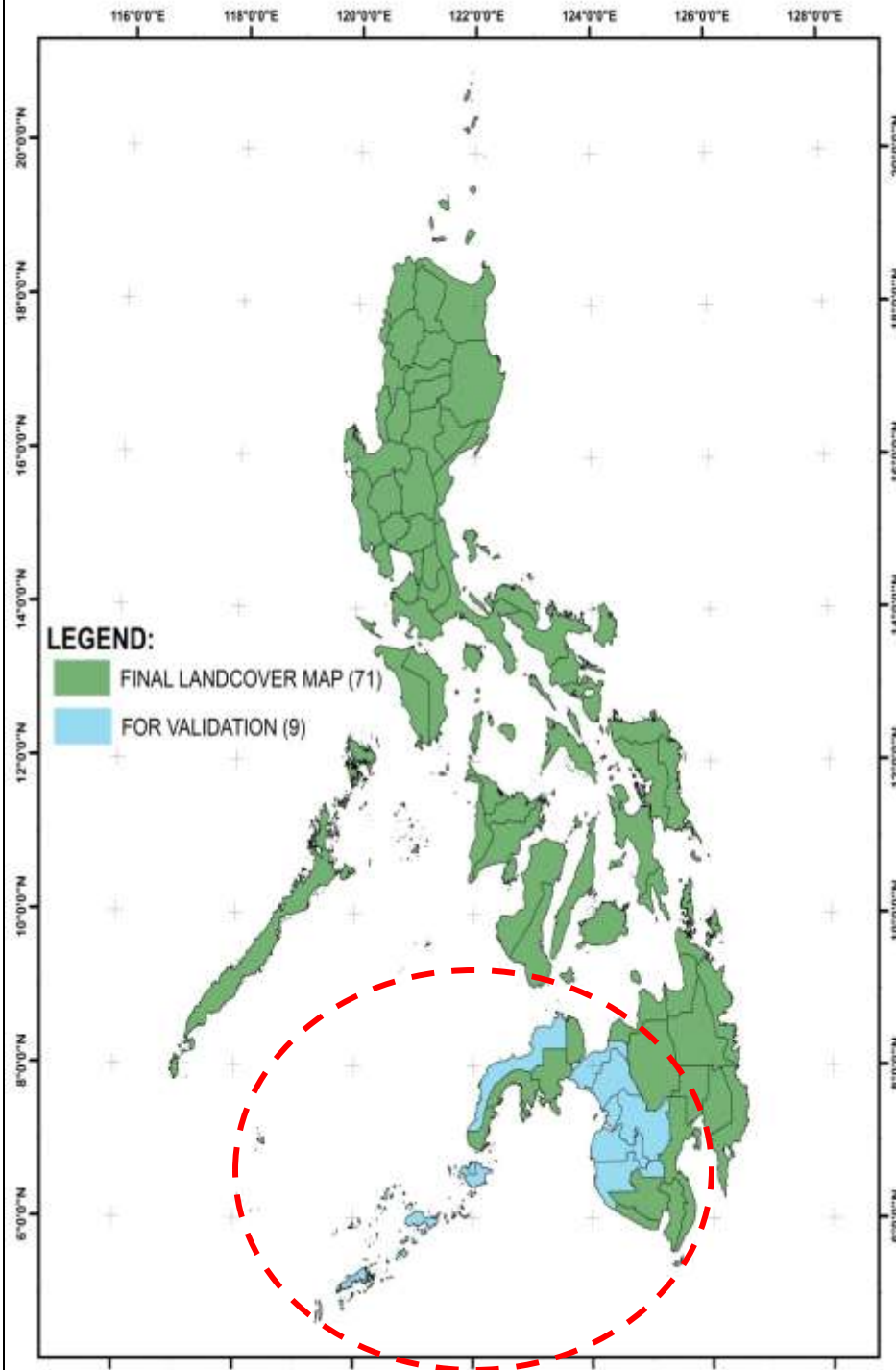


## Land Classification



**(Land Classification, 30 Million has total land area)**





Deforestation rate  
significantly dropped in the  
last decade

Forest growth is 55,000/ha/year from  
2005 to 2010 (FAO,2010; GIZ 2012)

NATIONAL GREENING PROGRAM (2011-  
2016)

Target: 1.5 Mha : 1.5 Billion trees



PHILIPPINES

- **one of the megadiversity countries in the world**
- **with high endemism.**
- **also a biodiversity hotspot**



courtesy of the IPI



# Summary of endemic terrestrial vertebrate **Animal** of the Philippines

Taxonomic Group	Total species	Endemic species	# of threatened species	# of threatened endemic species
Amphibians	116	95 (82%)	14	14
Reptiles	301	196 (65%)	24	24
Birds	614	186 (31%)	127	127
Land Mammals	231	130 (56%)	42	42
<b>TOTAL</b>	<b>1,262</b>	<b>607</b>	<b>207</b>	<b>207</b>




# National Plans to address pressure to forests and biodiversity in general

- Philippine National REDD+ Strategy (PNRPS)  
(2011-2020)
- Philippine Biodiversity Strategy and Action Plan (currently being updated and directly support the Aichi targets)



## The Aichi Biodiversity Targets




### Goal A: Address causes

-  **Target 1** Awareness
-  **Target 2** Mainstreaming
-  **Target 3** Harmful incentives
-  **Target 4** Sustainability plans




### Goal B: Reduce pressures

-  **Target 5** Loss of natural habitats
-  **Target 6** Overfishing
-  **Target 7** Sustainable management
-  **Target 8** Pollution
-  **Target 9** Invasive alien species
-  **Target 10** Climate change





### Goal C: Improve status

-  **Target 11** Protected areas
-  **Target 12** Threatened species
-  **Target 13** Genetic diversity

### Goal D: Enhance benefits

-  **Target 14** Ecosystems services
-  **Target 15** Restoration & carbon stocks
-  **Target 16** Nagoya Protocol

### Goal E: Improve implementation

-  **Target 17** NBSAPs
-  **Target 18** Traditional knowledge
-  **Target 19** Science base
-  **Target 20** Financial resources



## The project

In Philippines aim is:

Spatial analysis of multiple benefits from REDD+ that:

- **Supports decision making on REDD+ and CBD targets**
- **Supports identifying priority areas for REDD+ actions that enhance benefits**
- **Raises awareness on the benefits from forests and how REDD+ action may enhance the benefits, but also on how benefits may trade off with each other**



# AICHI TARGET

REDD+ Activity	Aichi Biodiversity Target				
	5	7	12	14	15
Reducing emissions from deforestation	●		○		●
Reducing emissions from forest degradation	●		●	○	●
Conservation of forest carbon stocks				●	●
Sustainable management of forests		●	●	●	●
Carbon stock enhancement			○	○	●



Activity directly contributes towards target



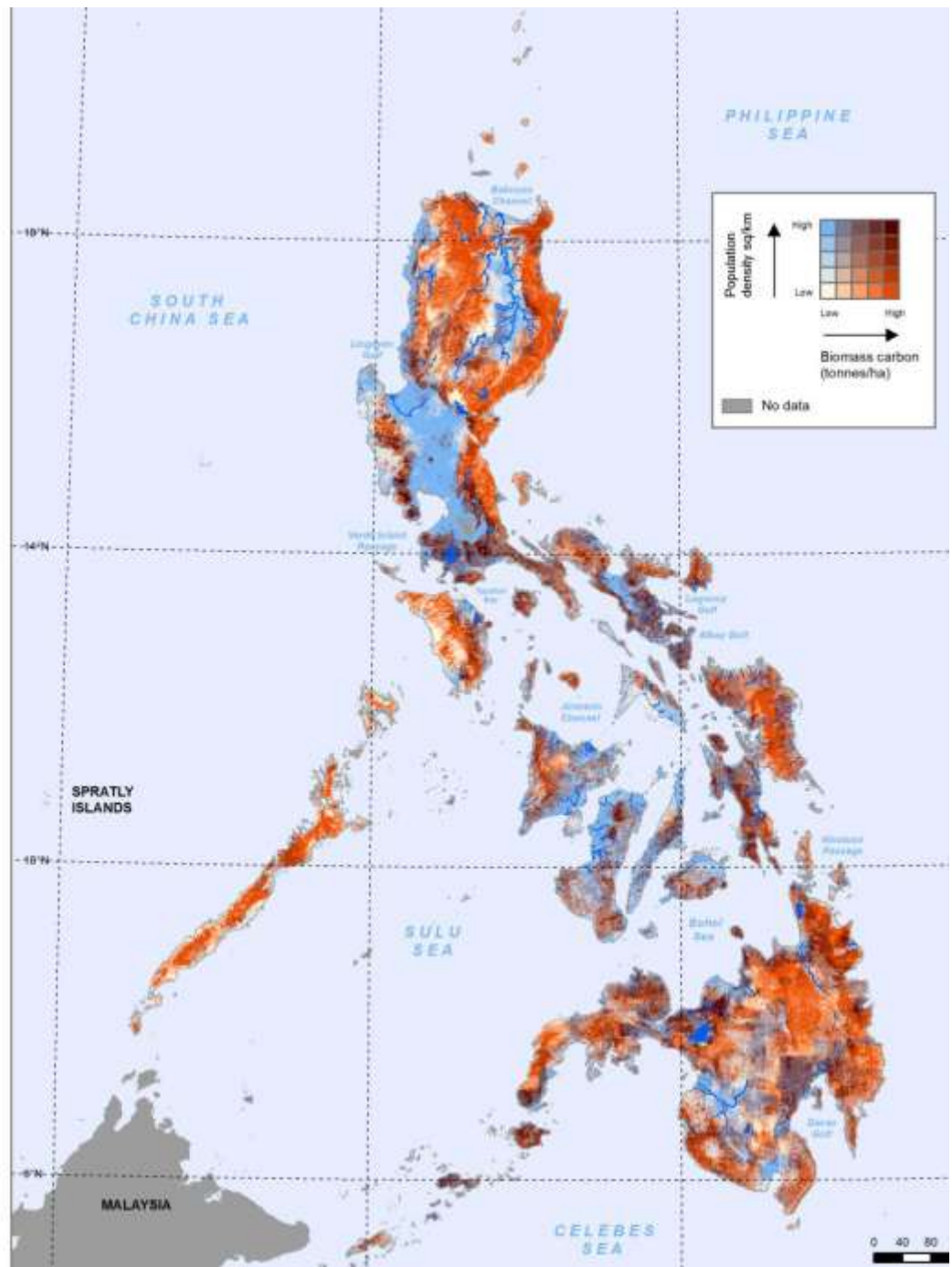
Activity plays supporting role in contributing to target



Depending on how activity is implemented, may or may not contribute towards target

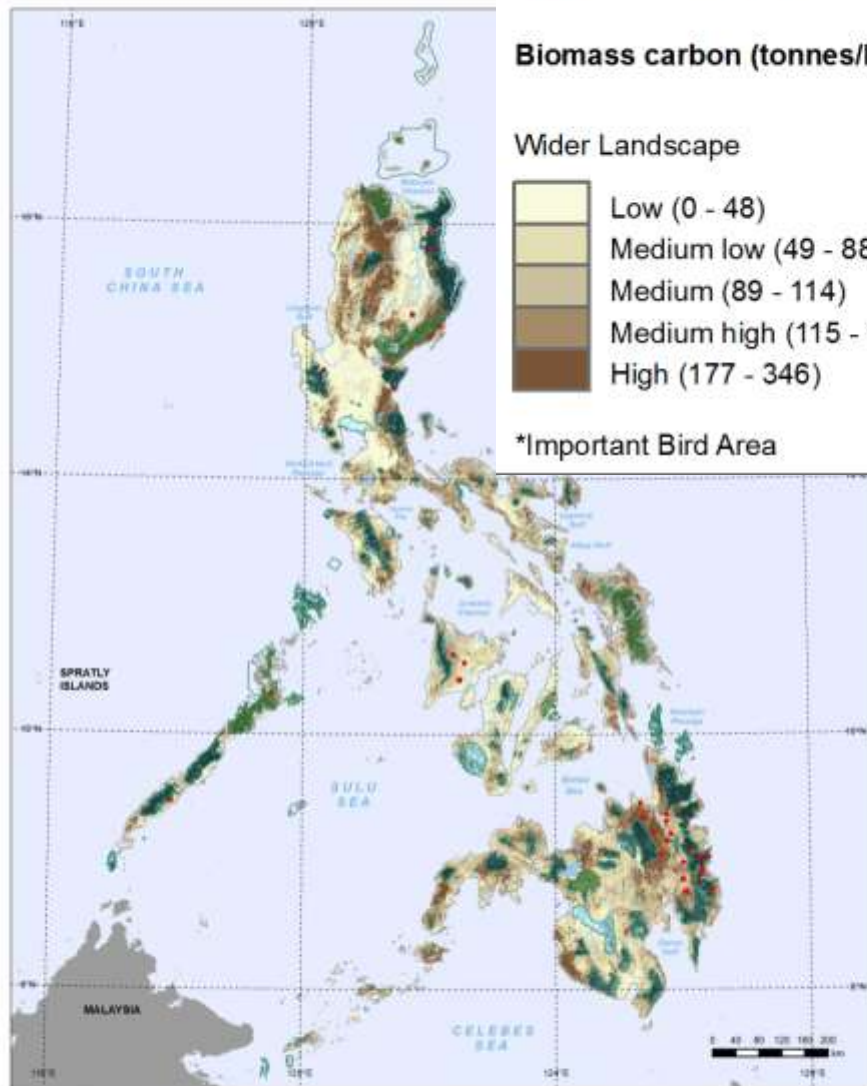
Source: REDD-PAC Webinar 2014

# Samples of Maps and Spatial Analysis by the REDD PAC Initiative

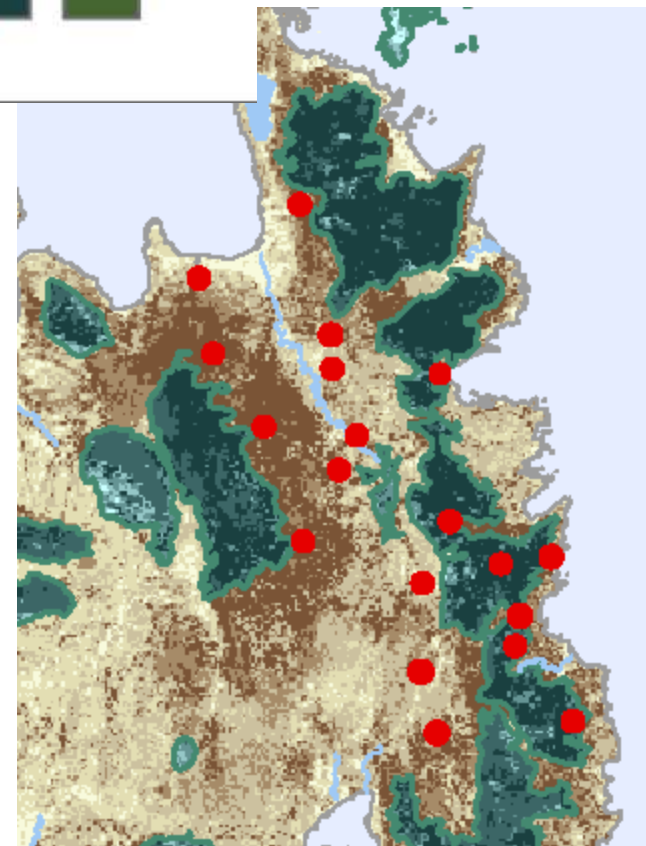


Key Biodiversity Area (KBA) boundaries

Illegal logging hotspots

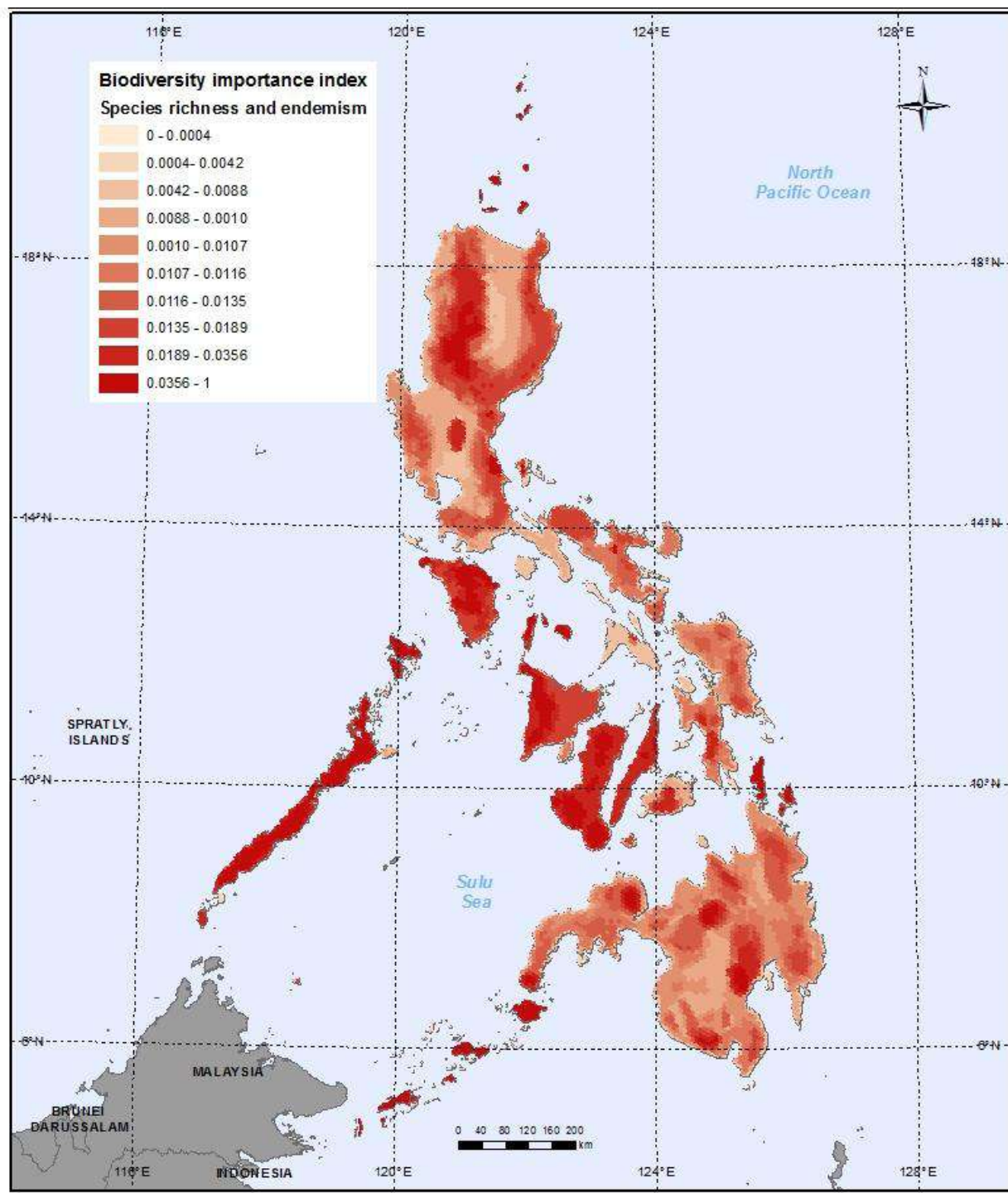
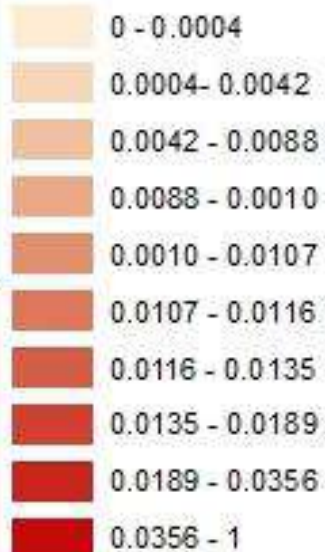


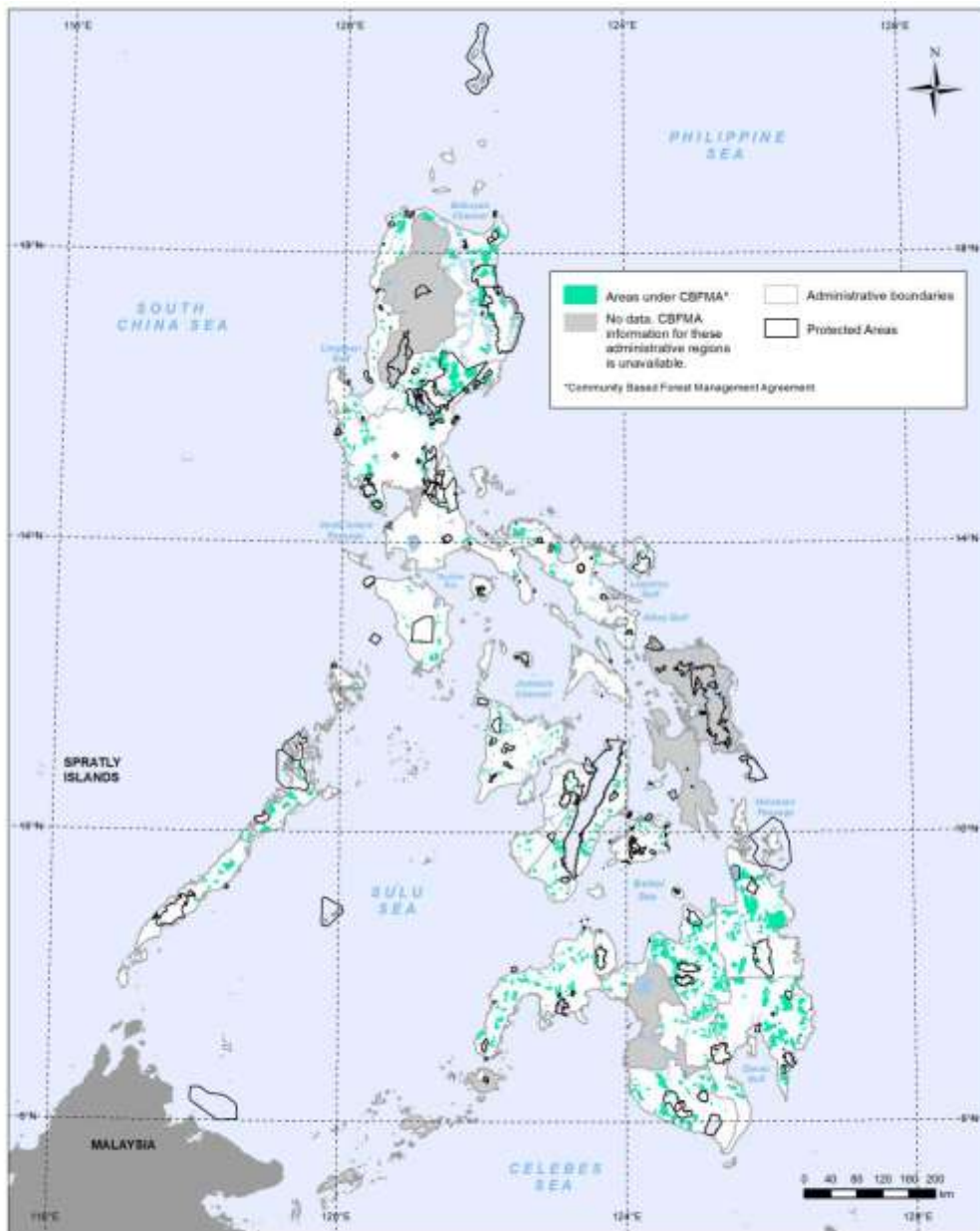
**Methods and data sources:**  
 Biomass Carbon: Houghton, S. et al. "Benchmark map of forest carbon stocks in tropical regions across three continents". *PLoS*, 106, 24 (2011), 9899-9904.  
 Biodiversity: Key Biodiversity Areas (KBAs) of the world including Important Bird Areas (IBAs) and Areas for Zero Extinction (AZEs) compiled by BirdLife International and Conservation International, October 2012. For further information, please contact mapping@birdlife.org.  
 Illegal logging hotspots: Hotspots recorded after Executive Order 23, 2011. Digitised from data from the Forest Management Bureau, (Department of Environment and Natural Resources (DENR), received December 2013).





## Biodiversity importance index Species richness and endemism

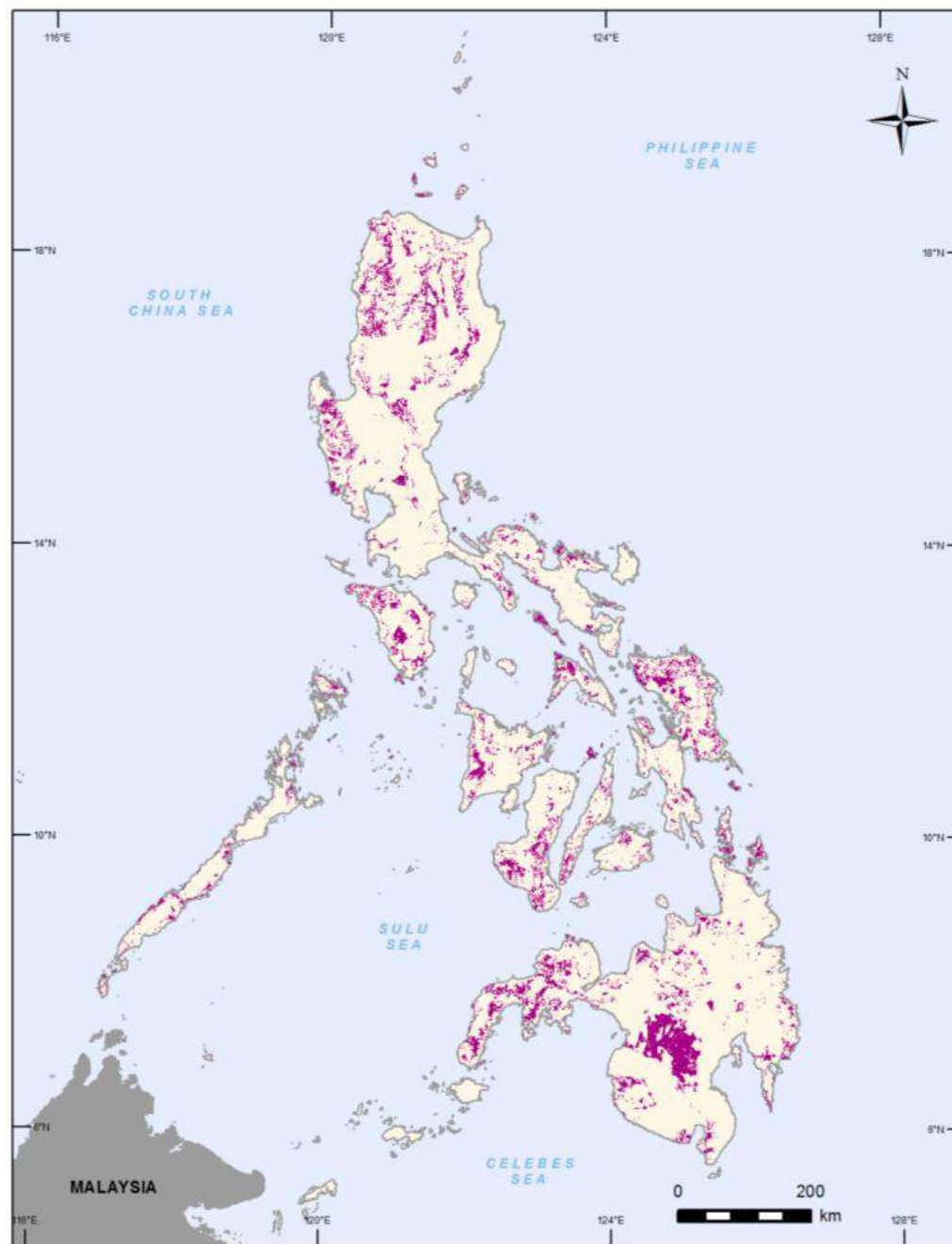




- Areas under CBFMA\*
- No data. CBFMA information for these administrative regions is unavailable.
- Administrative boundaries
- Protected Areas

\*Community Based Forest Management Agreement

Methods and data sources:  
 Protected Areas: Protected Areas and Wildlife Bureau (PAWB), Department of Environment and Natural Resources (DENR) (Obtained October 2013).  
 CBFMA areas: Forest Management Bureau, Department of Environment and Natural Resources (DENR), data obtained December 2013. No data on CBFMA is currently available for the following administrative regions: 8, ARMM, CAR and Marikina. These regions are displayed in grey on the map.



National Greening Programme (NGP) potential sites 2014 - 2016

■ NGP potential sites



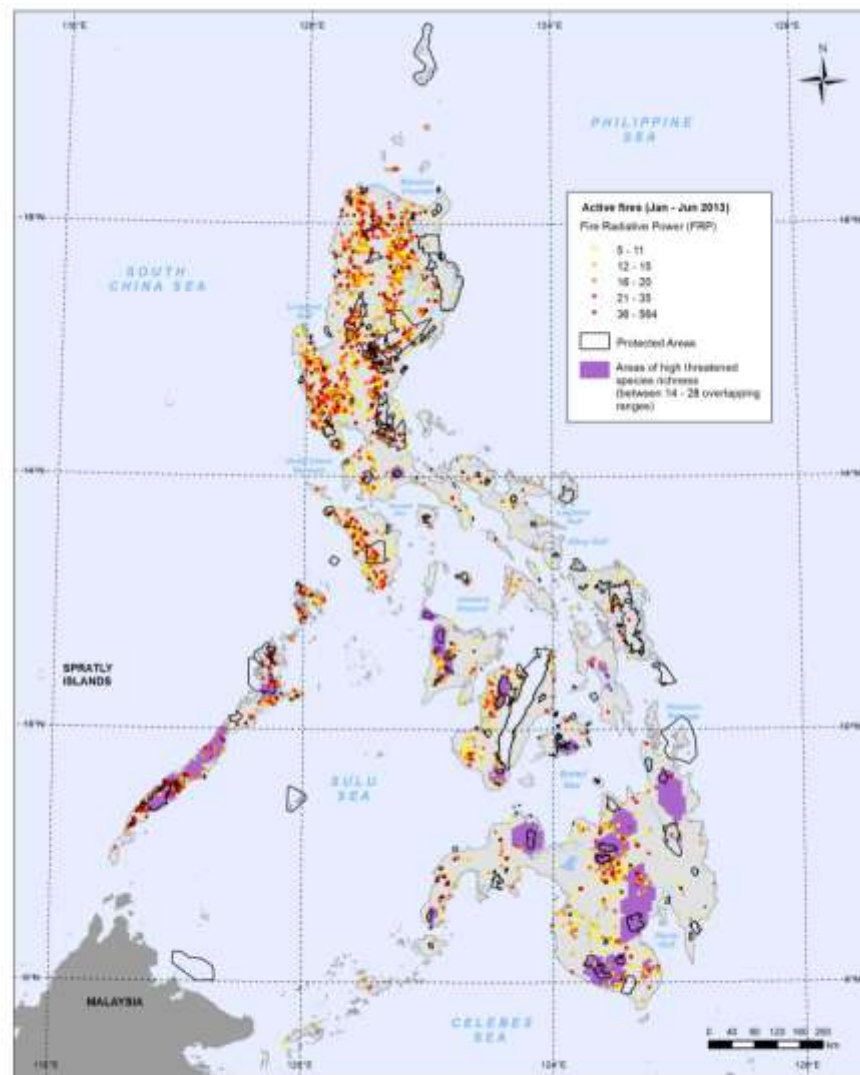
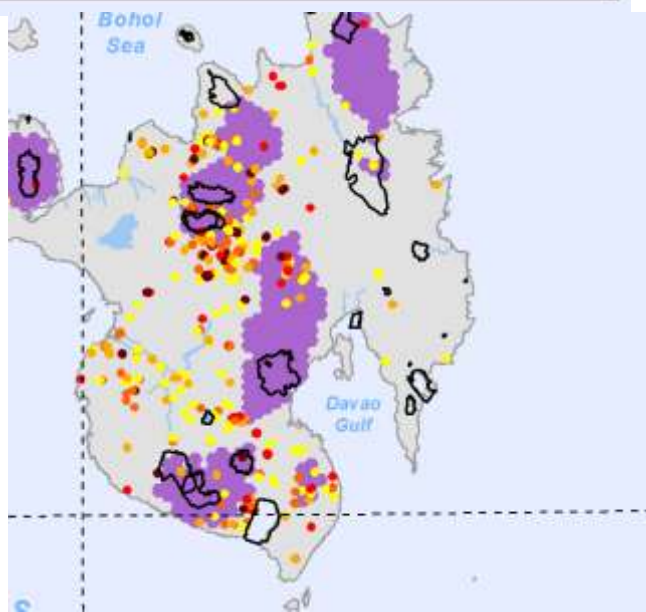
## Active fires (Jan - Jun 2013)

### Fire Radiative Power (FRP)

- 5 - 11
- 12 - 15
- 16 - 20
- 21 - 35
- 36 - 564

Protected Areas

Areas of high threatened species richness (between 14 - 28 overlapping ranges)



**Methods and data sources:**  
**Protected Areas:** Protected Areas and Wildlife Bureau (PAWB), Department of Environment and Natural Resources (DENR) (Obtained October 2013).  
**Species data:** See Map 3 for method description. The top ten classes from Map 3 have been used here to represent areas of high potential threatened species richness. IUCN 2015; IUCN Red List of Threatened Species, Version 2012.2. <http://www.iucnredlist.org>. Species information downloaded October 2015; spatial species range data April 2013.  
**Active Fires:** MODIS Active Fire Product, Fire Information for Resource Management System (FIRMS), Active fire January - June 2013. Fire Radiative Power (FRP) data are the pre-integrated fire radiative power in MW (Jongdekkoo, 2007) provided information on fire measured radiative heat output of detected fire. We acknowledge the use of FIRMS data and imagery from the Land-Atmosphere Near-real time Capability for Earth Science (LANCER) system operated by the NASA GSFC-Earth Science Data and Information System (ESDIS) with funding provided by NASAHQ. Downloaded December 2015. See: <https://earthdata.nasa.gov/earthdata/real-time-data/products/active-fire-data>

# Initial Mapping Results under REDD

## PAC has guided PBSAP updating process by:

- Pinpointing potential priority areas for conservation
- Identifying critical areas for restoration
- Firmed up gaps in intervention and in conservation actions

PRESSURES ON BIODIVERSITY AND FOREST	INTERVENTION/PROJECTS
<p>Wildfire Occurrences</p> <p>Threatened Species</p> <p>Illegal Logging Hotspot</p>	<p>Biodiversity Partnership Project</p> <p>NewCAPP</p> <p>B+WISER</p> <p>Small Grant Project (SGP)</p> <p>GIZ</p> <p>Forestland Management Project</p> <p>Integrated Natural Resources and Environmental Management Project</p> <p>ASEAN Peatland Forests Project</p> <p>Invasive Alien Species</p> <p>PA Financing</p> <p>PhilCAPP</p> <p>WAVES</p>



PRESSURE/ SITE	INTERVENTIONS				
<b>Illegal Logging Hotspots</b>	<b>New Conservation Areas Project (NewCAPP)</b>	<b>Biodiversity and Watersheds Improved for Stronger Economy and Ecosystem Resilience (B+WISER)</b>	<b>Integrated Natural Resources and Environmental Management Project</b>	<b>IAS</b>	<b>PA Financing</b>
<b>Bukidnon</b>	Mt. Kalatungan, Bukidnon	Mt. Kitanglad Range Natural Park, Bukidnon	Upper Bukidnon River Basin, Bukidnon	Mt. Kitanglad Range Natural Park (for survey)	Mt. Kitanglad Range NP  Mt. Kalatungan Range



**MARAMING SALAMAT PO....**

