Geospatial Solutions to Conservation

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Center for Conservation Innovations Ph (CCIP)

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Top 3 issues needing geospatial solutions

- information gap on forest cover and other spatial features;
- lack of a systematic functionality for monitoring spatially explicit observations of reforestation or of drivers and agents of deforestation/forest degradation; and
- lack of a forest cover classification in the language of our stakeholders,

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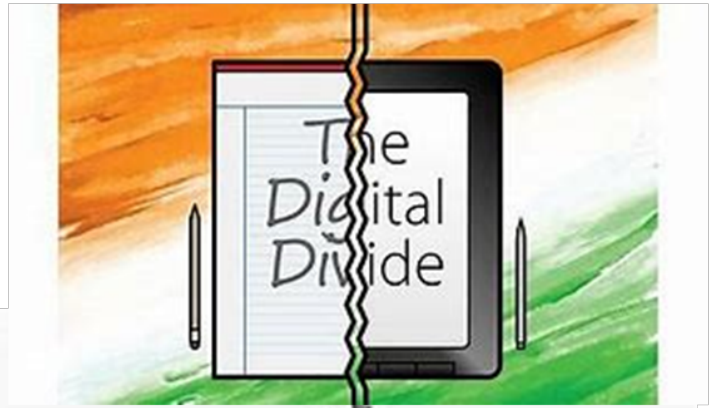
Information Gap

Gap in information pertaining to spatially explicit visualization of the forest

- desire to know the breadth and width of their forest domain;
- where is it that reforestation or assisted natural regeneration might be implemented; and
- where the forest is being degraded and cleared—so that forest patrols can be focused.

Analog or paper-based forest maps are useful to provide this information even out on the field.



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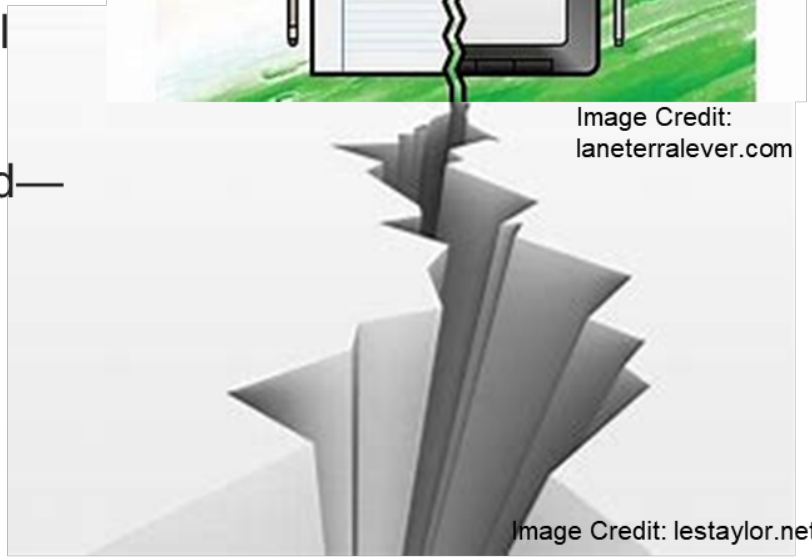

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Information Gap

However, users have become sophisticated nowadays and may want to:

- make quick calculations of areas;
- pinpoint coordinates quickly;
- manipulate data to provide the visualization needed;
- measure proximity of access via roads and river networks where forest disturbances are apparent.

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Information Gap

Solving the gap by building capacity of proponents in using geospatial tools like GIS, GPS, and mobile and web apps for mapping

- we train them with open-source technology such as QGIS, Google Earth Engine, MapIt app and Landsat Explorer app.
- collaborative teaching with NGO outfits in the Kandal province of Cambodia and in Quezon province of the Philippines, and a government agency managing biodiversity and protected areas in the Philippines


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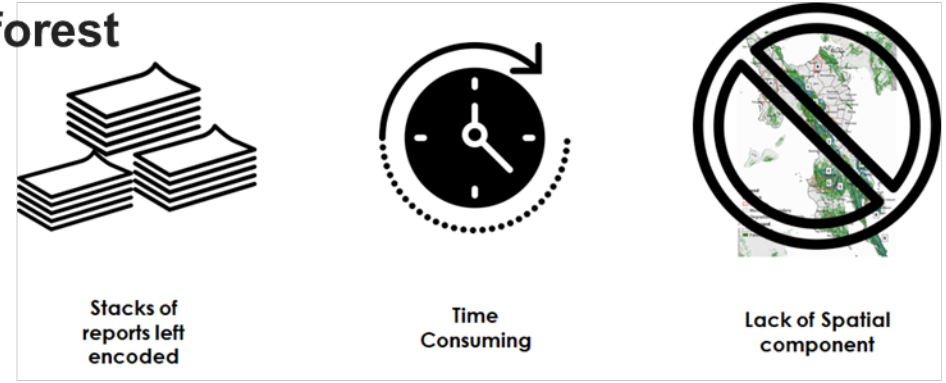
Lack of a systematic functionality for monitoring

Spatially explicit observations of reforestation or of drivers and agents of deforestation/forest degradation

- data sheets might compile somewhere in the corner of a room gathering dust;
- GPS gadgets might remain sitting on a table also gathering dust and rusting;
- kilometers of protected forest are remaining to be visited and monitored, but they are days away on foot, but you might need to bring a bulky species guidebook to help identify threatened flora or fauna.



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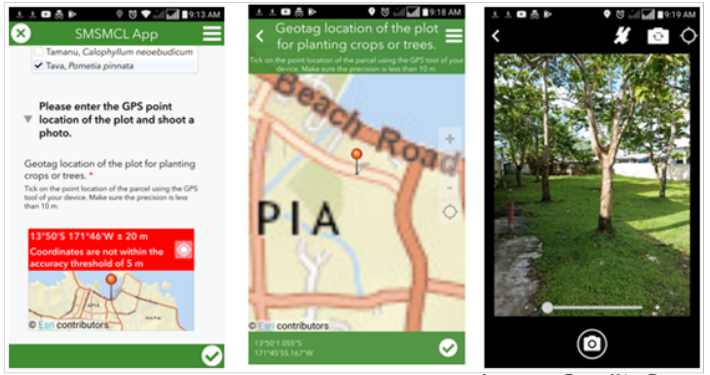
Lack of a systematic functionality for monitoring

Availability of the smartphone + software development kits made possible the creation of mobile apps by non-programmers to overcome the shortcomings in traditional field recording and forest patrolling.

- mobile app for reforestation work, agroforestry, record-keeping and monitoring;
- data can be easily transmitted via wi-fi or cellular data signals;
- adoption was low due to cost involved with the commercial software;
- another software was developed using open source covering both wildlife and forests;
- drones provide the extra eyes from the air.



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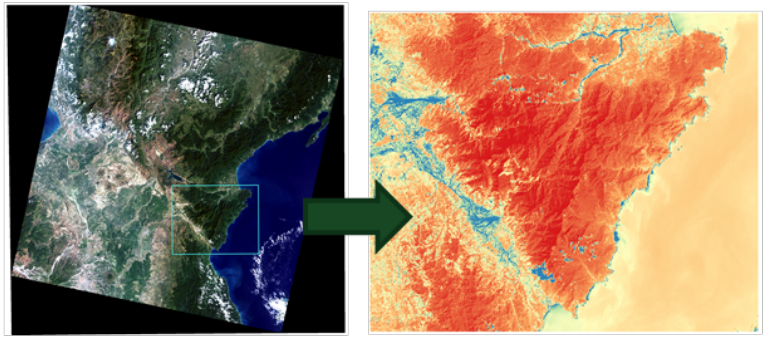
Lack of Forest Cover Classification in Stakeholders' Language

A clamor of conservationists and biodiversity scientists for a forest cover map with class categories reflecting characteristics and role of biodiversity and ecosystems.



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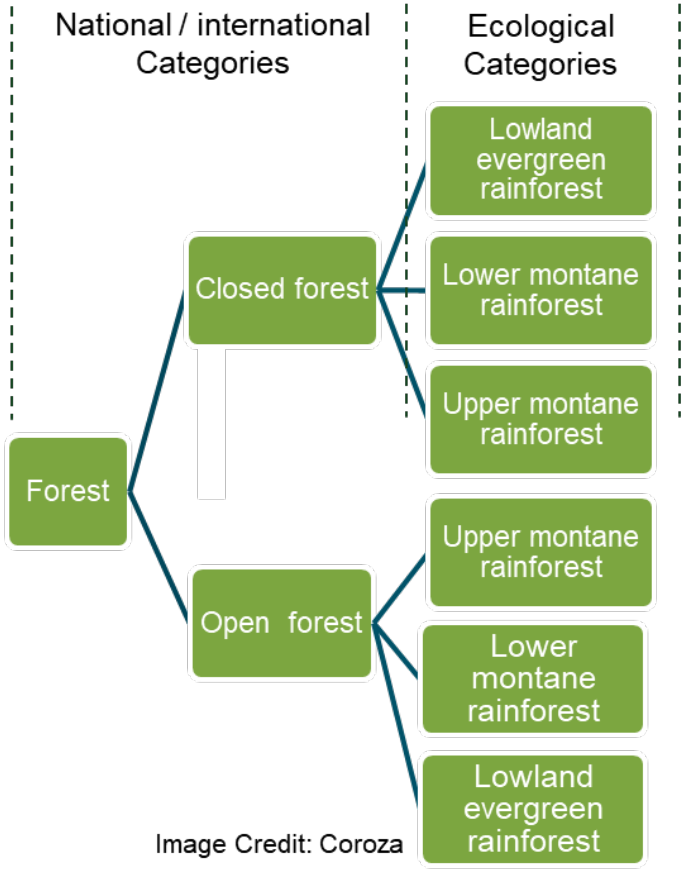
- forest maps with ecological categories are intuitive;
- the solution is to use species niche modeling and remote sensing, using machine learning algorithms, and train these to recognize the forest formation types from satellite or drone imagery and bioclimatic variables.

Predicting tree species presence indicating forest formation types in the focal protected areas using remote sensing and species niche modeling.

Lack of Forest Cover Classification in Stakeholders' Language

The classification approach fit together with the classification system of FAO on which the national land cover classification is based.

- Forest cover classes developed meets the requirements of the conservation community and also satisfies both the national and international classification norms.
- A similar request is coming from the IP community for such localized categorization of the forest, which will require some research considering the hundreds of ethnolinguistic groups present.



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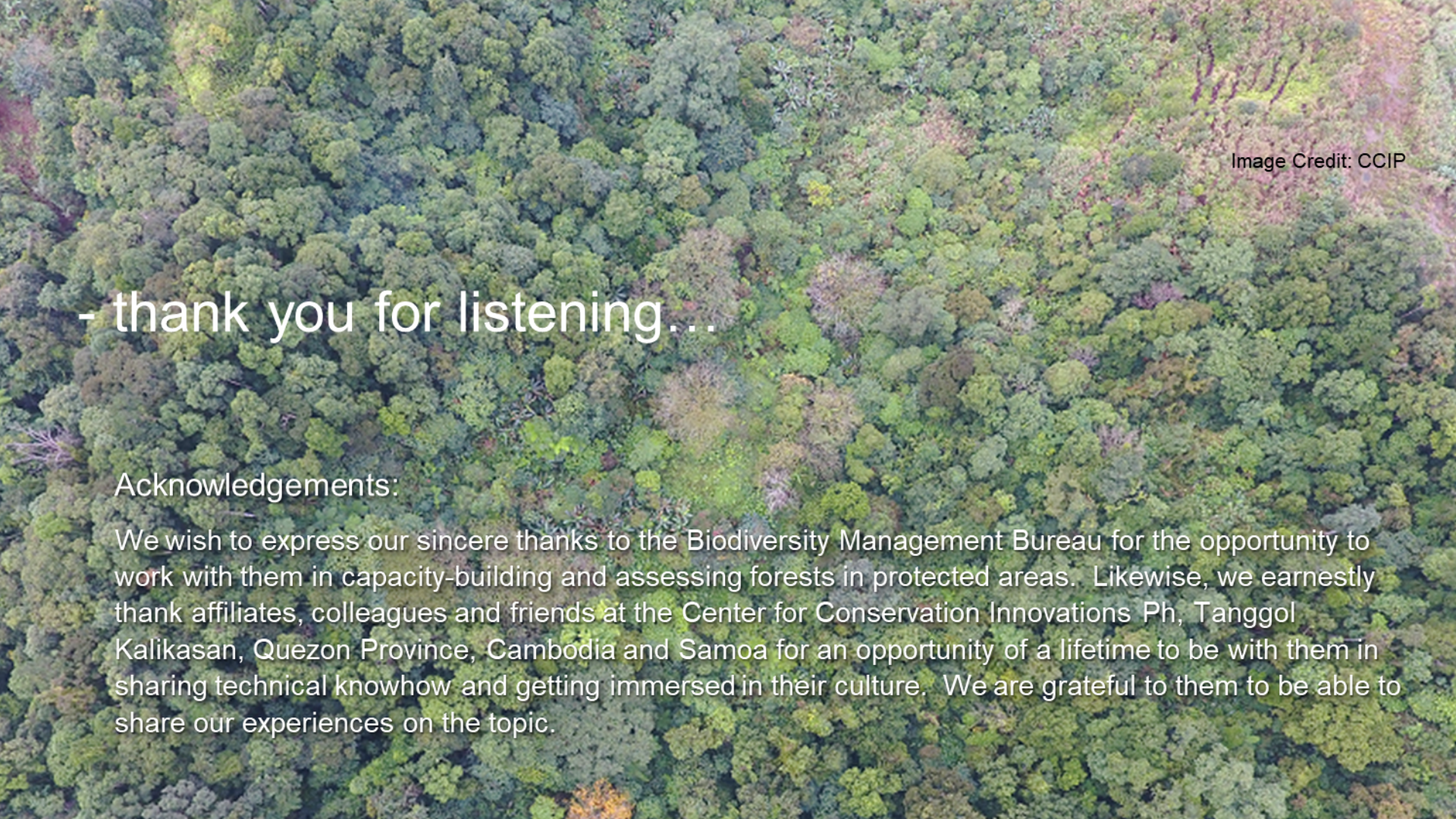

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- thank you for listening…

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