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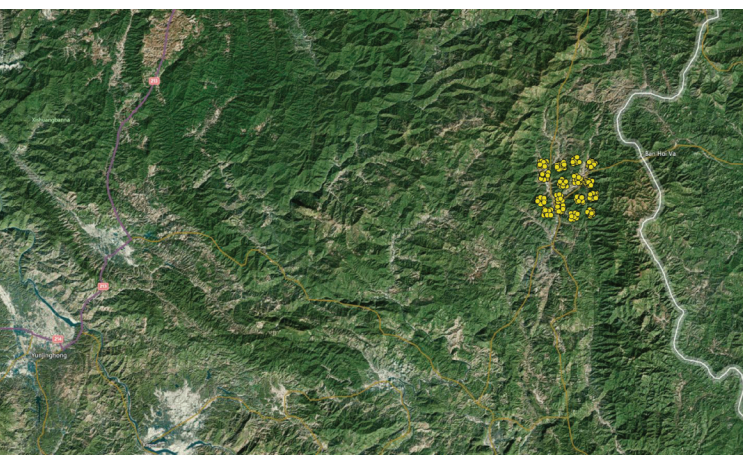
Land Health Assessment within Mekong Sentinel Landscape (SL): Manlaxiang

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Land health surveys were conducted in the Manlaxiang SL site in Xishuangbanna in 2014 (see figure on the left) using the Land Degradation Surveillance Framework (LDSF). The LDSF is a spatially stratified, randomized sampling design, developed to provide a biophysical baseline at landscape level and a monitoring and evaluation framework for assessing processes of land degradation and effectiveness of rehabilitation measures, over time. Each LDSF site has 160-1000m² plots that are randomly stratified among 16-1 km² sampling clusters.

Additional LDSF sites will be sampled in 2015, including M-beng in Laos, starting in January. The graphic on the right shows the location of cultivated plots in yellow (~50 % of the site). The dominant land uses across the site were rubber plantations followed by natural vegetation (see photo in the upper right corner), while the most common crop was rice.
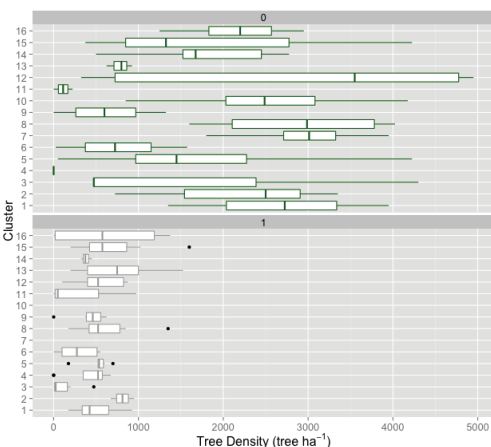
Key Indicators of Land Health

Soil erosion by water is an important indicator of land degradation. Modeled estimates show an average erosion prevalence of about 50% for the site, but with large variations between sampling clusters.


Manlaxiang — Cultivated / Non-Cultivated
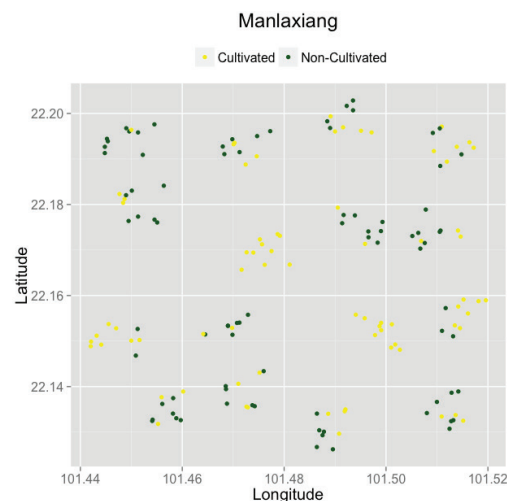
Manlaxiang Tree Density — Non-Cultivated / Cultivated

Tree (woody vegetation over 3 m tall) densities were measured for each plot in the site. Average tree densities were higher in non-cultivated plots (2078 tree ha^{-1}) than in cultivated plots (477 tree ha^{-1}) (see graphic on the left).

Infiltration capacity is another important indicator of land health due to its important role in terms of regulating the hydrological functioning of the system. The graphic on the right shows infiltration curves for the site, highlighting the variation within the site. Infiltration capacity is low on average, particularly in valley bottoms.

Manlaxiang-Raw Infiltration Capacity
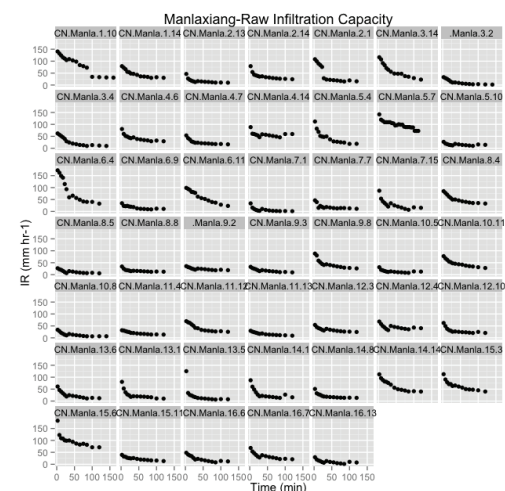
Conclusions and Continued Analysis

The preliminary results presented here illustrate the high level of variation in important biophysical indicators within the Manlaxiang site, highlighting the need for landscape-level approaches for assessments of land health.

Further analysis will focus on combining key indicators of land and soil health, including soil properties. Also, linkages with key socio-economic indicators at both household and village levels will be explored.

The Mekong SL is part of a global network of landscapes using a sonsistent set of methods to study human-environment interactions.
http://www1.cifor.org/sentinel-landscapes/home.html

Manlaxiang field training team, June 2014