Changes in the spatial and temporal pattern of natural forest cover in Hainan Island from 1950 to 2010 : implication for natural forest conservation and management

Hainan Island should make for an intriguing case study on deforestation over time, and the promise of a strong element on native forest elements of the landscape on Hainan Island would make this paper interesting to ecologists at least, and the land use change community. However, that promise does not, make this paper novel or innovative by any means, but documenting an interesting case study might be acceptable for publication.

The changes in NFC outlined on the discussion are intuitive and while this research has measured these there is hardly anything new for readers outside Hainan Island from a general viewpoint. A similar argument can be had regarding the rates of NFC in the next paragraph. This line of arguments can be extended to the discussion on fragmentation and the influence of the road network in loss of NFC.

However, the article disappoints on many fronts. It is not acceptable in its current format and requires minor amendments, which are listed with line references in the accompanying pdf), and significant expansion to arguments as follows.

The context of this paper needs to be widened extensively so that is expanded from a rather pedestrian case study with no methodological innovation or insights that researchers who are interested in these issues outside Hainan Island can learn from. That is the standard of a paper in an international journal. I strongly encourage the authors to read more widely, and set their study in wider contexts – there are three contexts – the objectives of the Global Land Program, global conservation concerns, and/or ecosystem services in humid tropical landscapes. Without at least one of these being invoked and used throughout the paper the article would not, in my opinion be acceptable for publication.

37-39. There are other assessments of global forest resources since the advent of satellite data, e.g. the University of Maryland datasets, though they do not go back as far at the FA0 data. The FAO have been critically evaluated by Grainger and found to be only partially accurate. Both of these points need to be made at this point. Moreover, the Maryland datasets can be used for local analyses (so lines 40-42 need to be adjusted slightly though the general tenor of what is written is true for the FAO inventories.

53-55. I am surprised not to see any reference to the extensive (and some might say) seminal research on roads and deforestation in Brazil (e.g. authors like Arima, Walker, Soares). Consider expanding your references

9-70. Please explain more fully what is meant by the ecological safety of people (as this is not a widely used term) and why they are at risk.

101-2. You say that image data are inadequate to map land use in the humid tropics. That statement can be countered by listing literally 100s of research papers where image data has been used. Cloud cover is often considered to be a key issue, but my experience is that in many parts of the topics this is less of an obstacle, even without recourse to could penetrating radar data. The key point here is that you do not need to invoke the inadequacies of image data as an excuse for using map data. At this point what is required is a strong argument for the use of the data you have used (e.g., its availability and quality) rather than denigrating 100s of research papers that have used satellite data.

105-110. This paragraph needs slight rewriting and the some indications given as to the types of misclassification found and how the field studies to resolve these were undertaken.

111. Explain what type of transformation was used.

117. By SLO I assume you mean slope angle rather than length or aspect. You need to state what slope parameter SLO specifically refers too.

133. It is normal to state which GIS software you used and the version of the software. Please do that

134. Please state what resolution of traffic maps means, do you mean mapping scale? If so, say mapping scale and not spatial resolution. State the scales in the supplementary materials.

153-6 The section of hot spot analysis needed to re-written and expanded so that the readers can understand what you have done. At the present time the sections tells me very little.

160. What units are associated with 40 in this line, and 30 later in the paragraph?

What are the impacts of different road types? Many road-deforestation studies I have read find differences in deforestation between major and minor roads, between sealed and unsealed roads. Also footpaths often provide ingress into forests before roads. An undifferentiated road network may not be adequate for your analysis. Please comment.

268-9. Small natural forest patches may maintain important ecosystem services for local residents (e.g. 'Fengshui Forest' in Wenchang County). This is the only reference to human use of forests in a sustainable manner. But it is a throwaway line; the vast majority of readers do not know what Fengshui Forests means or what ecosystems services are provided. Is this an isolated example or are there other examples in Hainan? Explain and expand this argument in the *Implications for natural forest conservation and management* section.