# Review of: "Open-Source Remote Sensing Determination of Carbon Emissions From Tropical Deforestation Scenarios in Southeast Nigeria"

Ernest G. Foli[1]

1 Council for Scientific and Industrial Research

Potential competing interests: No potential competing interests to declare.

The authors sought to deploy open-source remote sensing tools developed by the Global Forest Watch to monitor/determine carbon emissions from deforestation in Nigeria. This is useful in that it contributes to efforts to monitor forest cover loss to provide a basis for policy decisions. However, there are several limitations that affect the quality of the manuscript. Some of these are outlined below:

**Problem Statement**

The problem statement is rather weak and does not concisely indicate the rationale for the study. It is not clear how Covid-19 relates to the cost of acquiring high-resolution remote sensing imagery to warrant the use of open-source tools for the determination of forest cover loss.

**Study Area**

The data presented in Table 1 is captioned “Annual rainfall……in Southern Nigeria….”. However, it includes temperature. The content of the Table should speak to the caption.

Again, the authors indicate that rainfall levels had reduced due to the increase in world temperatures over the last five years. But rainfall patterns in Table 1 appear rather variable between 2012 and 2016, so there is no evidence of a reducing trend and, without providing evidence, the attribution to increasing world temperature is probably far-fetched.

**Field Data Collection Procedures**

The authors state that the research team “measured the diameter at breast height (dbh) of trees that were ≥ 1.3 m using a diameter tape (d-tape)”. But the description indicates that tree girth was recorded and had to be converted to diameter later. Perhaps the authors need to indicate that the “diameter” tapes were calibrated for girth measurement?

**Presentation of Results**

The use of “Spatial Areal Extent” sounds rather odd because the term “spatial” connotes dimensions of area, or the “extent” of space. Also, it is not clear whether the proportions specified in the sentence under this heading refer to the percentage of the total land area or total forest cover. There is a need for clarity here.

The second paragraph under the heading “Aggregate Tree Cover Loss Trend in Southeastern Nigeria” makes reference to “other land cover categories” occupying the remaining 2.53 million hectares. For clarity, it would be instructive to indicate what these other land cover categories are. Again, the third paragraph under this heading lacks clarity and needs to be more clearly stated.

**Discussion**

The discussion focuses on international concepts and initiatives related to emissions reduction rather than the results of the study. This makes the discussion rather weak and unrelated to the research.

Also, the third paragraph of the discussion is unrelated to the topic. It is not clear how the inability of “many young remote sensing scientists” to procure high-resolution commercial remote sensing data could make the GFW tool the most useful when there is no evidence in this research.

Intriguingly, the penultimate paragraph of the discussion makes reference to bamboo forestry, which is completely irrelevant in the context of the discussion or the research.

**Conclusion**

The authors state that various tree cover loss scenarios have resulted in the emission of 909 kt of carbon dioxide into the atmosphere annually as determined by the use of the GFW tool. However, there is no mention of the accuracy of these figures, and there is no evidence that the authors had compared these estimates by any other means. Therefore, it is not clear how the authors can conclude that the GFW tool deployed for this research is the most reliable tool.