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Exploring the Elephant in the Room: Do Oil Palm Boycotts Reduce Tropical Deforestation?

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Abstract

For over five decades, environmental activists have advocated for commodity boycotts as a solution to deforestation, targeting tropical timber around the 1980s and 1990s, paper and pulp around the 1990s and 2000s, and palm oil since the 2000s. These campaigns often oversimplify complex issues by attributing deforestation primarily to specific commodities and promoting boycotts as a definitive solution. This study reviews three recent calls to action – "ban palm oil," "boycott palm oil," and "sustainable palm oil" – and their associated hashtags (#Boycottpalmoil, #ProtectPongo, #SaveOrangutans) to assess their impact on consumer behavior and deforestation rates in Indonesia. Utilizing data from satellite imagery, literature reviews of over sixty relevant publications, and social media trend analysis from platforms such as Google Trends and change.org, we found that these boycotts have not significantly influenced the trends in Indonesia's deforestation rates, particularly following a notable decline after 2016. Our findings suggest that while these campaigns may resonate with consumers, they are largely ineffective in addressing the multifaceted drivers of deforestation. We advocate for a shift towards supporting credible initiatives that promote sustainable practices rather than relying on boycotts as a primary strategy for environmental change.

Keywords: calls to action, deforestation, Indonesia, #Boycottpalmoil, #ProtectPongo, #SaveOrangutans

1. Introduction

For well over half a century, environmental activists have disagreed over the best approaches to tackle tropical deforestation, with 'moderates' promoting sustainability initiatives and 'extremists' pursuing calls to boycott that target commodities: tropical timber around the 1980s and 1990s [1–3], paper & pulp around the 1990s and 2000s [3,4] and palm oil since the 2000s [5–7]. Yet, academia has regularly pointed out that the commodities targeted had limited impacts on tropical deforestation [1,4]. For instance, less than four percent (<4%) of the total harvested tropical timber volumes were exported in the early 1990s [1,8].

"*Boycotts convince concerned* consumers *that they are contributing to a solution when in all likelihood they are not.*" [9]

Between 1980 and 2020, Indonesia faced commodity boycotts targeting its timber, paper & pulp, and palm oil [8,10,11], mainly due to concerns about deforestation and illegal logging and the impacts on local communities [11,12]. However, both (tropical) deforestation and illegal logging are complex issues due to the numerous drivers that vary greatly by region and forest type but are linked to two root causes: 'abject poverty and overpopulation' [1]. Generally, the cultivation or extraction of commodities is not the primary driver of deforestation. For instance, Indonesia's drivers of deforestation in the 2010s included (international) demand for timber and paper & pulp, population increase, and transmigration

programs [13]. Nonetheless, activists "*hoped*" that "*blanket boycotts by consumers*" [1] would greatly affect the trade flows of the targeted, mainly bulk, commodities.

However, the actual impacts of such calls to boycott targeting single commodities on deforestation rates in Indonesia remain unclear. Activists frequently argue that sustainability initiatives aimed at improving oil palm cultivation, such as the Indonesian Sustainable Palm Oil (ISPO) standard and the Roundtable on Sustainable Palm Oil (RSPO), have failed to halt deforestation over the past two decades. Similar criticisms can also be directed at boycott campaigns themselves, which have likewise not succeeded in stopping tropical deforestation over the last half-century. These conditions highlight the need for a more holistic and evidence-based evaluation of the effectiveness of boycott movements in addressing deforestation across Indonesia.

2. Materials and Methods

The study employed a comprehensive review methodology to analyze the impact of three social media hashtags associated with the calls to ban/boycott/sustainable palm oil (#Boycottpalmoil, #ProtectPongo, and #SaveOrangutans) on deforestation rates in Indonesia. The following steps in data collection were undertaken:

- We gathered data on deforestation rates and oil palm cultivation from reputable sources, including government reports, scientific publications, and satellite imagery analyses (including a.o. [14–19]).
- A systematic review of over sixty recent publications covering Indonesia's deforestation and oil palm cultivation was conducted using databases such as Science Direct and Scopus. Key words included: Indonesia, deforestation, forest degradation, oil palm, and palm oil. This review focused on English studies published from 2018 to 2023 to ensure the relevance of the findings.
- We examined trends related to three specific calls to action: "ban palm oil," "boycott palm oil," and "sustainable palm oil," along with associated hashtags (#Boycottpalmoil, #ProtectPongo, #SaveOrangutans). Data were collected from platforms such as Google Trends, change.org, and Our World in Data [20–23]. The analysis was limited to the five years from late November 2018 to late November 2023.

We analyzed search trends and social media engagement metrics, evaluating trends in deforestation [14–19] against online search trends [20–23] to identify peaks in public interest related to each call-to-action. This involved comparing the frequency of searches and mentions across different platforms. The results were evaluated in consultation with topic experts [24–26] to ascertain the causes behind identified peaks in search trends. This assessment helped contextualize quantitative data within broader socio-political dynamics.

To ensure reliability, data from various sources were cross-referenced. For instance, deforestation data from Global Forest Watch was verified by comparing it with findings from government reports and academic studies. This approach helped validate the observed trends and minimized dependence on a single data source.

3. Results

Deforestation is the conversion of forest land (use) to non-forest land (use), generally due to agriculture, animal husbandry, or urban use, as well as harvesting wood for commercial purposes [27,28]. In general, deforestation assessments in Indonesia and around the world are based on the area of deforested forests and deforestation rates. Deforestation causes forests that initially had large area values to be divided into isolated forest patches [27]. Land cover changes in tropical regions are related to more complex environmental issues [29,30]. Apart from that, deforestation and land cover changes in the tropical areas are often associated with even more complicated political and socio-environmental conflicts between stakeholders worldwide [31].

The drivers of orangutan habitat loss (lowland natural forests) are multifaceted and interconnected, with industrial agriculture expansion representing the most significant threat. Conversion to estate crops (including oil palm, rice, rubber, and timber) is a key driver of orangutan habitat loss, with half of the orangutan population affected by logging, deforestation, or industrialized plantations between 1999 and 2015 [32,33]. Mining operations, particularly coal extraction, have been identified as significant contributors to orangutan habitat degradation [34], while infrastructure development, including road construction and human settlements, further accelerates deforestation patterns [35]. Habitat loss due to climate change alone could average 63% by 2080 [36,37], while continued deforestation patterns could result in habitat loss for more than 26,000 orangutans by 2032, or ¼ of the current population [38].

Indonesia's annual deforestation (see Figure 1) ranged from ½ million hectares (Mha) in 2003 to 2½ Mha in 2016 [14,39]. Sources attribute this deforestation to a combination of factors, including large-scale plantation agriculture, small-scale agriculture, logging, mining, and conversion of forests to grasslands or shrublands [12,28,39]. The different drivers of forest loss changed over time, with deforestation due to palm oil plantations decreasing since 2009, and conversion to grassland or shrubland peaking in 2016 [39]. Oil palm plantations and wood fiber plantations (1½ Mha each) were the two most significant contributors to forest loss inside concession areas [12]. Small-scale agriculture and small-scale plantations caused the most considerable deforestation outside concession areas [12], contributing to ⅕ of Indonesia's forest loss [12,39]. Wildfires (the dark-grey parts in Fig. 1) were an important driver of deforestation during 2013-2015 and 2019-2020 [40].

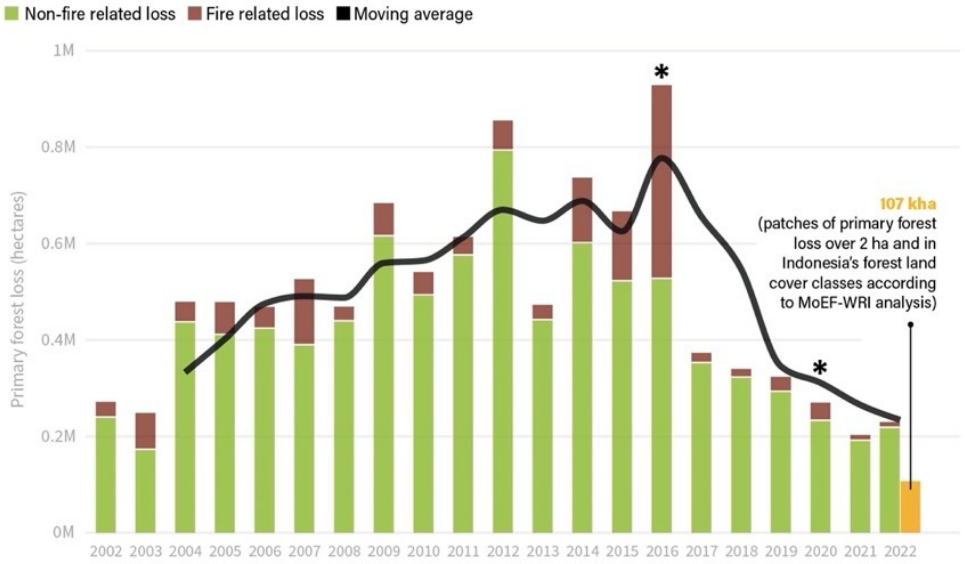

Figure 1. Indonesia's primary forest loss significantly decreased after 2016 [14].

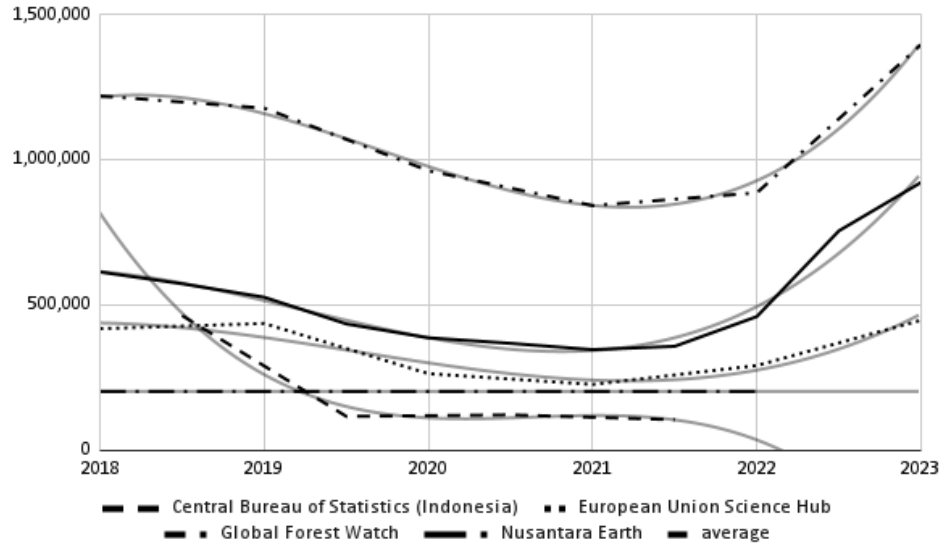

Figure 2. 2018-2023 deforestation trends for Indonesia [14,41–43].

Deforestation in Indonesia has significantly reduced [39,44], and is currently at a historical low! Academics and practitioners attribute this decline in forest loss to stricter clearance permits, unusually wet weather, and declining palm oil prices [44,45]. Between 2018 and 2023, a significant decrease is observed up to 2021-2022 (see Figure 2). However, independent data from Global Forest Watch indicates a resurgence in deforestation in 2022 and 2023 [14], with increases of 13% and 27% respectively, particularly in Kalimantan, Papua, and protected areas. This reflects the complex dynamic influenced by regional variations and differing methodologies between official and independent sources.

The significant disparities in Indonesia's 2018-2023 deforestation rates stem primarily from methodological differences in forest definition and measurement approaches. Global Forest Watch (GFW) reports higher figures due to its use of Landsat-based tree cover loss detection, which includes all vegetation over 5 meters tall without distinguishing natural forests from plantations [14]. In contrast, Indonesia's Statistics Agency (BPS) calculates net deforestation by subtracting reforestation from gross loss, yielding substantially lower figures [41]. Additionally, GFW measures gross deforestation, while studies like the World Resources Institute's analysis focus on primary forest loss [14,46]. Resolution and validation protocols further contribute to discrepancies: GFW's 30-meter Landsat data detects finer-scale changes compared to coarser datasets [46], and BPS incorporates ground-truthing aligned with national land classification systems [41]. These definitional and technical variations underscore the importance of transparency in methodology when interpreting deforestation statistics.

Figure 3-5 present the results of the three calls to action analyzed as a percentage of the highest exposure over the whole period. (Note: each top peak is discarded from the figures to allow for more detail.) For context, much of the conversation on X regarding (banning) palm oil lately originates from India, mostly covering health issues, followed by Africans talking about their cuisine [26].

The call to "*boycott palm oil*" shows no peaks on the Web, but a minor peak around mid-July 2023 on YouTube. This peak may be linked to an influencer on Instagram [47]. However, further analysis is needed. The call-to-action pivots around YouTube, with almost three times more publicity than on the Web.

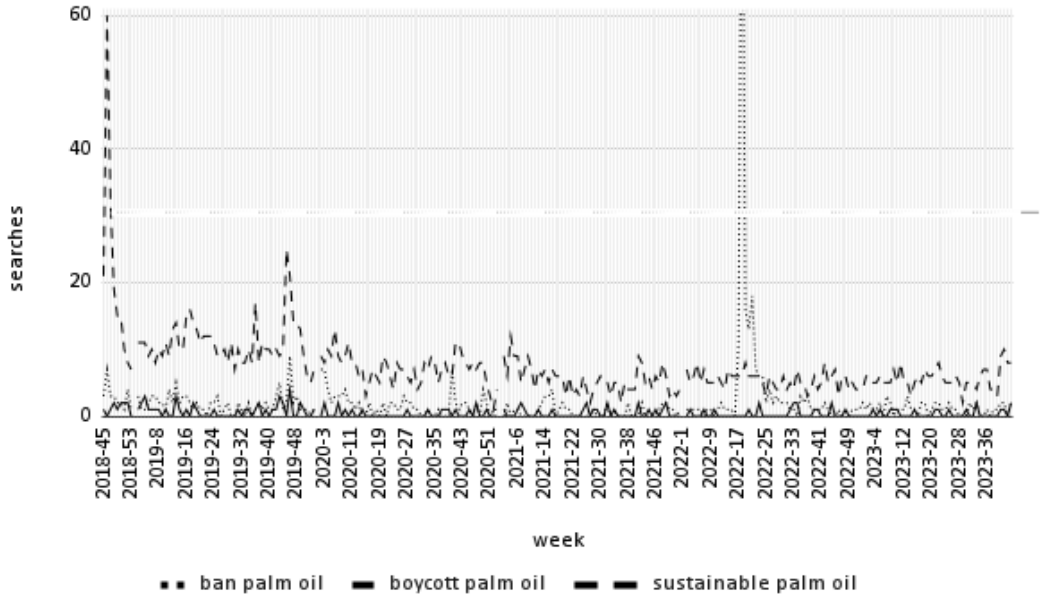

Figure 3. Google searches worldwide on ban/boycott/sustainable palm oil show distinct peaks [48].

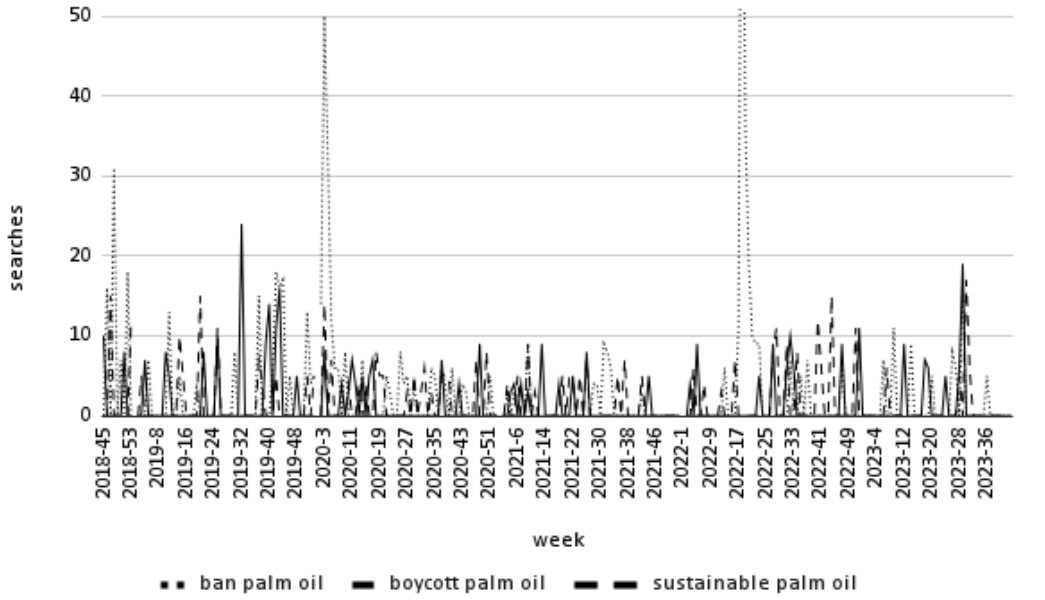

Figure 4. YouTube searches worldwide on ban/boycott/sustainable palm oil show peaks that align with Google searches [48].

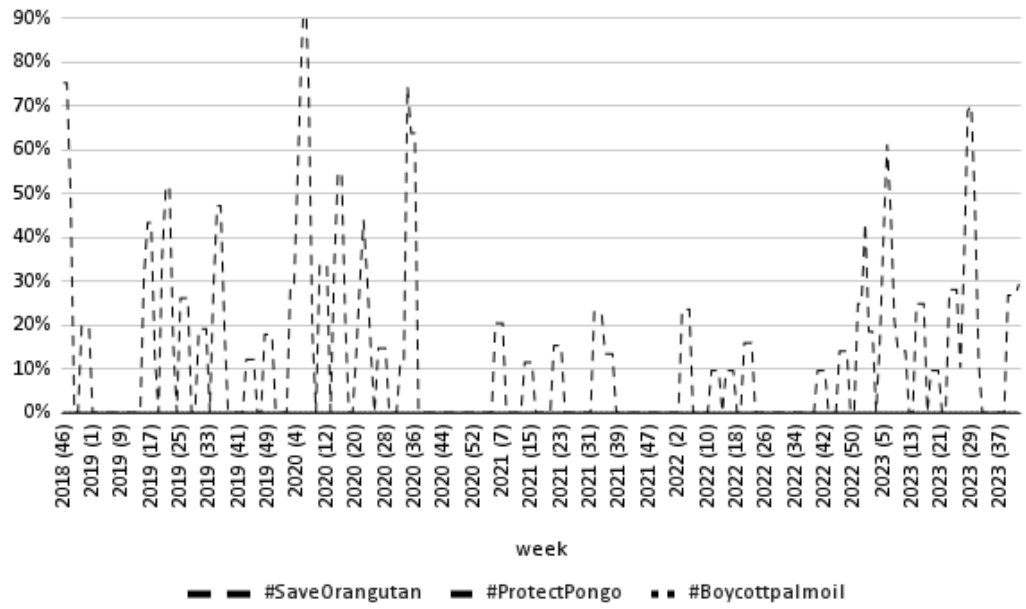

Figure 5. The #saveOrangutans hashtag shows distinct peaks that don't align with the Google/YouTube searches [48].

The call for "*sustainable palm oil*" shows significantly more exposure (by a factor of over 15!) than the calls to boycott, while its exposure on YouTube is similar. One central peak in exposure occurred around mid-November 2018 on the Web, which is attributed to the release of the RSPO's updated Principles and Criteria for the Production of Sustainable Palm Oil [49]. A minor peak occurred in early November 2019, possibly linked to ongoing concerns about the sustainability of palm oil production, environmental concerns, and positive trends in palm oil production [50]. This call-to-action is web-oriented, with low coverage on YouTube.

The call to "*ban palm oil*" obtained over four times more exposure than "*boycott palm oil*" on the Web and nearly double the exposure on YouTube. This call-to-action shows two major peaks, around mid-January 2020 on YouTube and late-April 2022 on the Web and YouTube. These are mainly rooted in the political dispute between India and Malaysia over Kashmir [51]. Furthermore, two minor peaks occurred on YouTube, around late-November 2008 and mid-July 2023. The first is in reaction to the 'sustainable palm oil' peak 2 weeks earlier, while the second peak's origins are unclear. This call-to-action is both Web and YouTube oriented, with a slightly higher exposure on the latter.

4. Discussion

In 1999, Friedman defined a boycott as "*an attempt by one or more parties to achieve certain objectives by urging individual consumers to refrain from making selected purchases in the marketplace*" [52] and explored a wide range of boycotts, including environmental protection, labor rights, and minorities-oriented boycotts. Boycotts typically aim to exert economic, social, or political pressure in pursuit of desired changes or outcomes. Yet, the role of academia in many aspects of boycotts has remained limited [52,53], and a taxonomy of boycott types and their success factors remains ambiguous.

Ecological boycotts remain a relatively new phenomenon but lean towards 'conscience' (towards the greater good of the public) and 'instrumental' (toward practical ends) oriented boycotts [52]. While tropical timber boycotts are well covered by Friedman, most targeted brands (like Georgia-Pacific, Mitsubishi, and Weyerhauser) [52]. In contrast, recent calls to boycott are more commodity-oriented yet don't align with the commodity boycotts over price increases as described by Friedman.

"*Commodity boycotts are often difficult to execute successfully, especially if the target product is one for which many consumers have established strong allegiances, such as coffee or meat.*" [52]

Nonetheless, Friedman's claim about commodity boycotts (cited above) holds firm! Boycotts of tropical timber, paper & pulp, and palm oil are considered to have had relatively small impacts [52,54,55]; they don't support sustainable management of resources and (thus) often result in increased (rather than decreased) deforestation [8,54–56]. Critics of commodity boycotts stress their discriminatory nature (by singling out tropical commodities in general and Indonesia and Malaysia in particular [8,54,55]), that they are mainly rooted in negative emotions [53,57] and often show "*little in the way of action is evident to impartial observers*" [52].

With commodity boycotts as a young branch of ecological boycotts, which is relatively new, much of the impact of commodity boycotts remains unknown. Worse, the debate about what environmental impacts are (un)sustainable [58–60] is still far from settled. Marketers and spin doctors thrive on consumers' emotions in these murky waters and suggest commodity boycotts are effective calls to action. An example is change.org, a website where calls to boycott remain "*active*" for years without any evident action [61].

This study is crucial for advancing our understanding of the complex dynamics surrounding palm oil production and its environmental impact. By examining the widespread influence of both pro-sustainability and boycott campaigns, this research highlights the need for more accurate and data-driven approaches. Although calls to boycott have gained considerable attention in public discourse, evidence suggests that their effectiveness in curbing deforestation remains limited. While these campaigns may influence consumer perceptions and corporate branding strategies, they have not translated into consistent reductions in deforestation rates, particularly in Indonesia, where structural and political drivers of land conversion remain dominant.

The analysis reveals that the call for "*sustainable palm oil*" shows significantly more exposure on the internet than the calls to boycott, by a factor of over 15 (see Figure 3). In contrast, its YouTube exposure is similar to calls to boycott (see Figure 4). One major peak in exposure occurred around mid-November 2018 on the Web, which is attributed to the release of the RSPO's updated Principles and Criteria for the Production of Sustainable Palm Oil [49]. A minor peak occurred in early November 2019, possibly linked to ongoing concerns about the sustainability of palm oil production, environmental concerns, and positive trends in palm oil production [50]. This call-to-action is web-oriented, with low coverage on YouTube. Interestingly, despite the relatively low visibility of boycott campaigns compared to sustainability campaigns, no significant evidence exists that either approach alone has impacted deforestation trends.

Figure 6. Meridian Foods claimed palm oil equals deforestation to promote its products [62].

Two fallacious arguments are regularly used to promote calls to boycott: the false dilemma of either cultivating the targeted commodity or saving the tropical forest [63,64], and the "*pretty earth fallacy*" [65] about (dark) green in mapping apps equaling (intact) tropical forest (see Figure 6-7). Furthermore, marketers are particularly fond of (ab)using iconic wildlife to promote their products/services. For instance, the hashtag #ProtectPongo in Figure 6 – used around 2020 by Meridian Foods [66] – merged the endangered orangutan with the false dilemma between palm oil and rainforest. Similarly, a New Zealand spin doctor regularly (re)posts the same false dilemma using the hashtag #Boycottpalmoil [67].

However, neither #Boycottpalmoil nor #ProtectPongo appears to have significantly impacted consumers (see Figure 5). For instance, the hashtag #SaveOrangutan performed well over the last five years, with its top 3 peaks around mid-November 2018, early-February 2019, and mid-August 2020. The first occurs around Orangutan Caring Week and the third around International Orangutan Day [26]. In contrast, the hashtags #Boycottpalmoil and #ProtectPongo flatline in comparison to #SaveOrangutans.

"*[The Indonesian ministry's forest cover maps] are the basis of our deforestation claims, but we also do an extra check visually.*" [68]

In particular, this study addresses the growing challenges of deforestation claims and the misinterpretation of satellite data, which can impede effective policymaking and sustainable practices. By investigating these issues, we aim to contribute to a more informed and nuanced conversation about balancing economic development with environmental conservation, especially within the palm oil industry. One example of a misleading tactic used by activists is the Pretty Earth Fallacy [65]: suggesting that (dark) green areas on mapping apps represent (intact) rainforests. For instance, Figure 7 shows an infamous example of a "*forest*" plot (the thin grey polygon) that was later "*cleared*" [69]. However, individual shrubs/trees (the white circles) within the (dark green) polygon and shrubland/forest above it (the white oval) are visible, showing that the "forest" is agricultural land that was later ploughed for replanting.

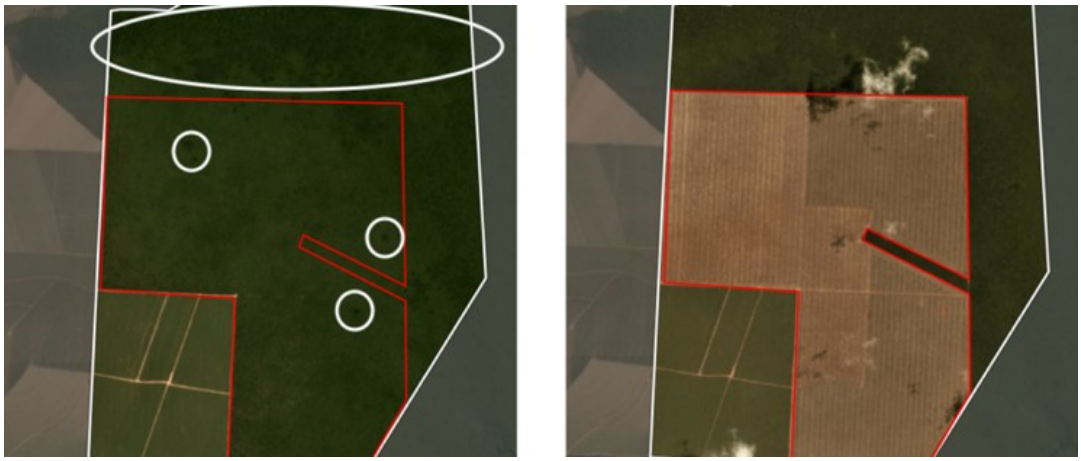

Figure 7. Aidenvironment classified land tilling as deforestation [69].

Similar fallacious claims are published regularly, often based on Google Earth Historical Imagery [70–72], and then used to justify calls to boycott. For instance, an Indonesian timber plantation was accused of ongoing deforestation in 2021, despite ample evidence of land clearing around 2013/2014 and 2019 [68,73]. An Indonesian oil palm estate was similarly accused in 2022 despite significant land clearing during 1995-2000 and a mining operation active near the cleared land [74,75].

The Global Land Analysis & Discovery (GLAD) lab tree cover loss data, despite its explicit warning that tree cover loss doesn't equate to deforestation [65], is also often used to make fallacious claims about deforestation.

The use of pre-processed satellite imagery in the detection of deforestation requires more than visually checking mapping imagery. Users need to be particularly aware of the "*algorithms and, occasionally, a set of loose norms*" [76] that determine which information to foreground. Strict procedures need to be implemented to minimize bias. For instance, Nusantara Atlas cross-references the GLAD data on tree cover change against the Radar for Detecting Deforestation (RADD) data on deforestation as well as feedback from local practitioners [77,78].

5. Conclusions

The findings of this study indicate that calls for commodity boycotts have not significantly influenced deforestation rates in Indonesia. Despite decades of advocacy targeting tropical timber, paper products, and palm oil, there is little direct evidence to suggest that these campaigns have led to meaningful reductions in forest loss. Instead, the reviewed literature consistently highlights the ineffectiveness of boycotts, which often create the illusion of consumer-driven impact while failing to address deforestation's complex and systemic drivers. Major causes of forest loss – such as agricultural expansion, illegal logging, weak law enforcement, and socio-economic pressures – remain largely unaffected by consumer purchasing decisions alone. This study emphasizes the need for more holistic and integrated approaches beyond simplistic boycott narratives. Effective strategies should promote sustainable land management, strengthen community-based conservation, and tackle root causes such as poverty and population pressure. Rather than endorsing blanket boycotts, consumers and policymakers are encouraged to support credible sustainability initiatives and conservation campaigns that demonstrate a tangible impact. Movements like #SaveOrangutans offer more constructive engagement by combining awareness with actionable support for habitat protection. Commodity boycotts may resonate emotionally with global audiences, but transforming deforestation trends requires collaborative, evidence-based interventions embedded in broader socio-ecological frameworks.

Author Contributions

BWA: Conceptualization, Research Design, Methodology, Data Analysis, Writing - Review and Editing; **NL**: Data Acquisition and Analysis, Writing - Editing; **IKN**: Data Acquisition and Analysis, Writing - Editing.

Conflicts of interest

The authors declare no conflicts of interest related to this study.

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