Integrity and the ERF's Human-Induced Regeneration Method: The Additionality Problem Explained

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Earlier this year, we went public with details of serious integrity issues in Australia's carbon market, which forms part of the Emissions Reduction Fund (ERF). One of our main concerns is with a carbon offset method known as *Human-Induced Regeneration of a Permanent Even-Aged Native Forest* (HIR). Our analysis suggests most of the credits issued under this method are not backed by real and additional carbon storage.

When originally made, the HIR method was intended to incentivise the regeneration of native forests by allowing juvenile trees and shrubs to regrow in areas that were previously cleared. These projects do not involve any tree planting – the regeneration is natural and supposed to be induced by reducing grazing pressure and stopping re-clearing.

Offset projects involving the regeneration of native forests in previously cleared areas are both legitimate and desirable. However, the vast majority of HIR projects are not doing this. Almost all of the current HIR projects are located in semi-arid and arid areas (less than 350 mm average annual rainfall) that have never been comprehensively cleared, meaning proponents are trying to regenerate native forests in remnant native vegetation solely by reducing grazing pressure.

For this to make any sense, grazing would need to be responsible for dramatically reducing the prevalence of trees and shrubs in the rangelands and it would have to be possible to regenerate these 'lost forests' by reducing grazing pressure. Neither of these are true.

For more than 30 years, there has been a heated debate in ecological and natural resource management circles about the causes of 'woody thickening' (or increasing density of native trees and shrubs) in grazing areas. The two dominant and competing hypothesis are that: (1) woody thickening is caused by grazing and an accompanying reduction in burning in grazed rangeland; or (2) it is cyclical phenomena caused by periods of above and below average rainfall in water constrained ecological systems, so that woody vegetation slowly accumulates through time, especially following regeneration events triggered by runs of wet years, until a drought 'resets' woody plant populations. The animosity between the supporters of these competing hypotheses has been magnified by the fact that woody thickening has been used to explain and justify clearing for grazing purposes.

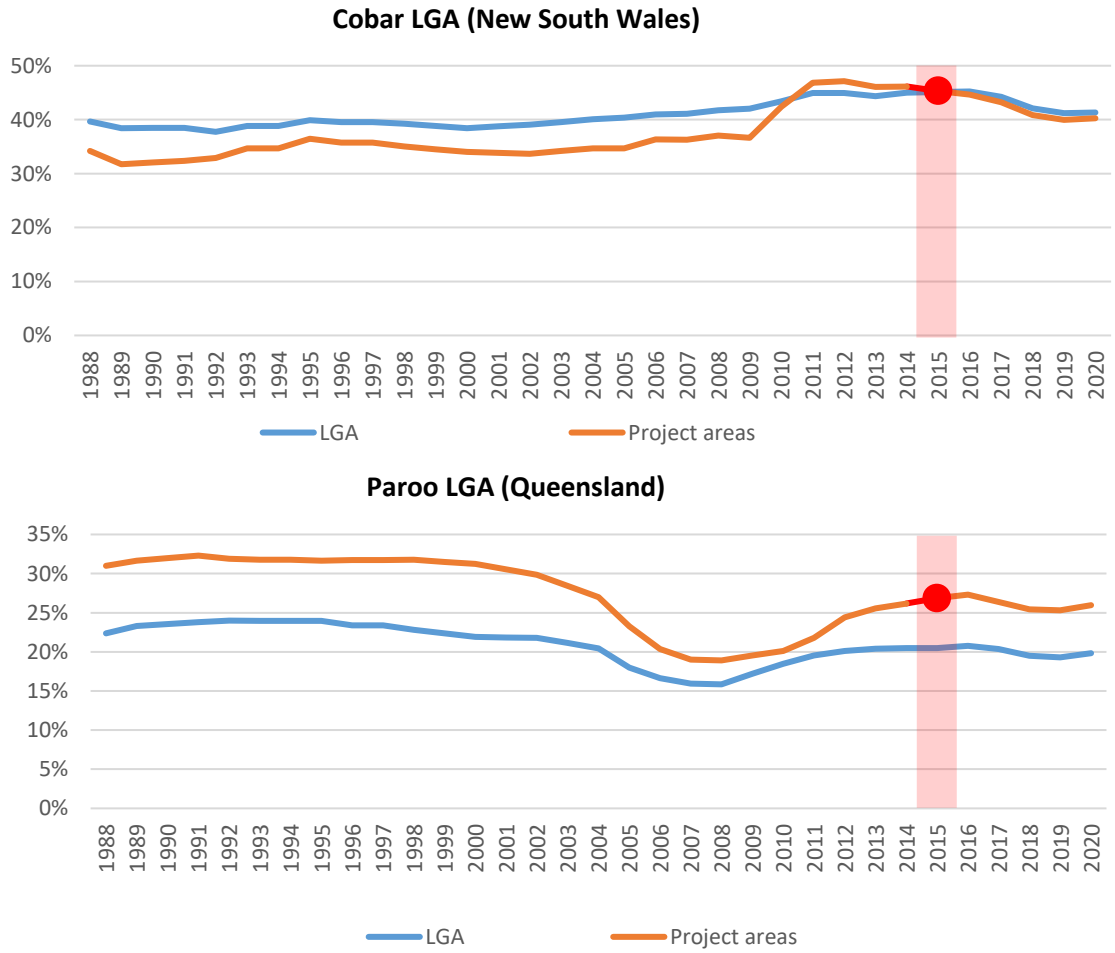
Never in the 30 years of this debate has there been any material evidence or support for the notion that grazing alone (in the absence of clearing) has significantly reduced tree and shrub cover over vast areas of the rangelands; as would be necessary to justify the current gross misapplication of the HIR method.

In certain circumstances, grazing pressure can materially reduce tree and shrub cover, including in regenerating vegetation following from clearing. However, cases where grazing transforms woody vegetation without prior clearing are exceptions, not the rule. Generally, any negative impacts of grazing on tree and shrub cover are at the margins in native vegetation. Even in previously cleared areas, grazing is rarely sufficient to stop regrowth without mechanical or chemical interventions to kill trees.

The most obvious evidence of this is the fact that, every year, between 200,000 and 400,000 hectares of land that was cleared for grazing is re-cleared. If grazing was good at suppressing regrowth, graziers would not need to use bulldozers and herbicides to keep regrowth down.

Further evidence of the inability to regenerate forests in uncleared remnant vegetation by reducing grazing pressure comes from the performance of HIR projects. For several years, we have been tracking changes in woody cover in HIR project areas and comparing them to woody cover changes in the broader local government areas (LGAs) in which they are located. The graphs below show the results for two of the LGAs with the most HIR projects: Cobar (NSW) and Paroo (QLD). The red dot (and vertical red band) shows 2015, the year the first HIR projects were registered in the two LGAs.

The 2010-12 La Niña event produced above average rainfall in the rangelands of eastern Australia, which prompted an increase in woody vegetation cover, both inside the HIR project areas and in the surrounding LGAs. Over the period 2013-2020, more dry years resulted in limited change or a decline in woody cover in many rangeland areas, including in the Cobar and Paroo LGAs. The trends in woody cover inside the HIR project areas after 2015 when the projects commenced have mirrored the trends in the surrounding LGAs – yet over 6 million carbon credits were issued to these projects between 2015 and mid-2020.

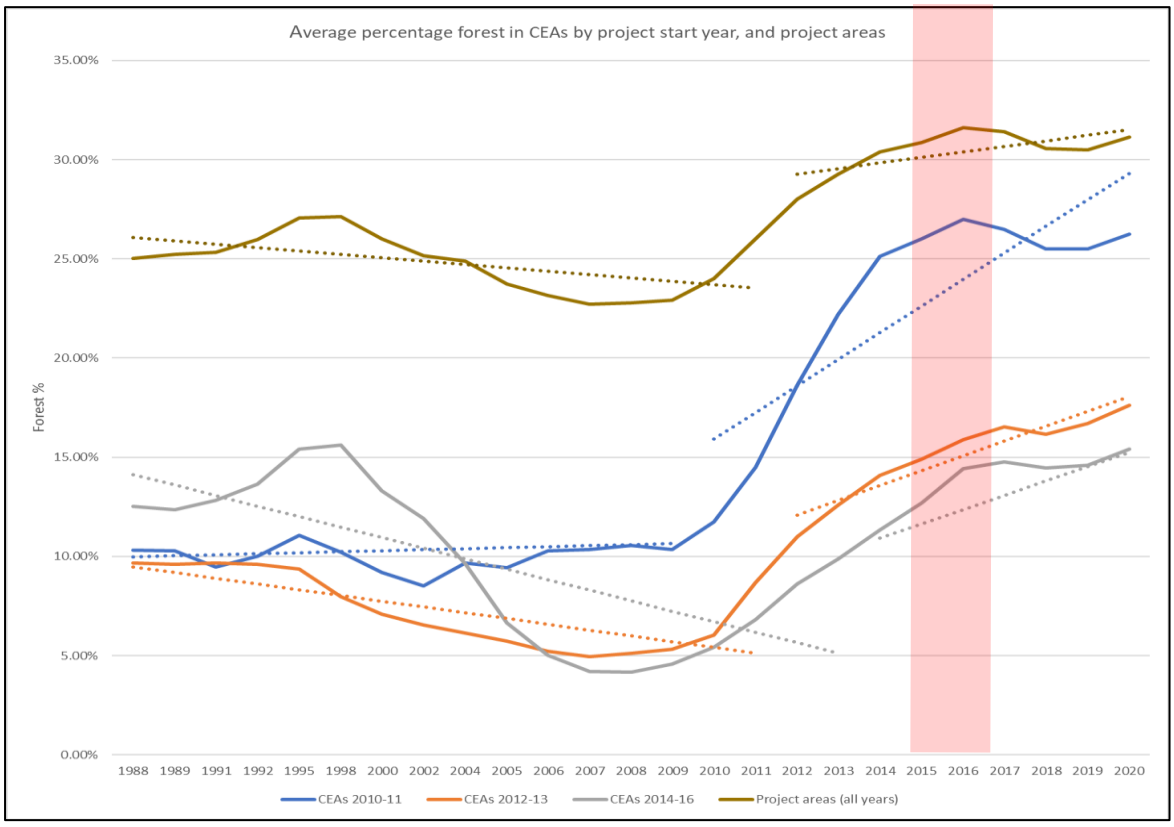


When the Regulator and ERAC were presented with this evidence, they commissioned a report that compared trends in woody cover inside the areas that are credited (known as the 'carbon estimation areas') to the trends in adjacent areas. The report found a small but statistically significant difference between the trends in these two areas.

But there was a fatal flaw in the analysis: the study compared woody cover trends in areas that are specifically selected for inclusion in carbon estimation areas on the basis that they contain trees and shrubs that have the ability to grow and achieve 'forest cover' (20% crown cover), to the trends in areas that are specifically excluded from carbon estimation areas because they do not contain trees and shrubs that have the ability to grow and achieve forest cover. This is a basic experiment design error – in scientific jargon, the areas selected for comparison are not valid controls for the treatment areas.

In addition to this, the difference in woody cover they detected was very small, particularly when compared to the number of credits that have been issued to these projects.

In their latest attempt to deflect criticism and defend the status quo, the Regulator and ERAC have presented the graph below, which they claim shows two things: 1) projects are regenerating native forests; and 2) our analysis of woody cover trends is invalid because it is based on project areas rather than the carbon estimation areas. The ERAC report states that the solid blue, orange and grey lines in their graph show forest cover trends in the carbon estimation areas of projects that commenced in 2010-11, 2012-13 and 2014-16 respectively. The top brown line shows forest cover trends in the project areas. The dotted lines are trend lines, with the inference being that forest cover has been increasing considerably faster in the carbon estimation areas than the project areas.



Source: ERAC (2022) *Emissions Reduction Assurance Committee findings on the Emissions Reduction Fund's Human Induced Regeneration method*. Available at: http://www.cleanenergyregulator.gov.au/DocumentAssets/Pages/ERAC-findings-on-the-Human-Induced-Regeneration-method.aspx. Vertical red band added to show period most projects were actually registered.

Yet there is a problem. The original ERF legislation (the *Carbon Credits (Carbon Farming Initiative) Act 2011*) only commenced in December 2011; the HIR method was only made in January 2013; and

the first HIR project was only registered in late 2014. How it is then that the graph shows projects starting in 2010-11 and 2012-13?

The answer is that the original version of the HIR method allowed proponents to backdate their project commencement dates. However, when a line is placed on or around the true start year of most projects in the sample (shown by the vertical red band we added to the graph)—when it is plausible that proponents took steps to reduce grazing pressure—it is apparent that there is barely any difference in the trends in woody cover (and the trend lines would be largely flat). As importantly, the upward trend in all of the lines starts at the same time, 2010-12, regardless of when the projects supposedly started. A line for the broader landscape, outside project areas would also show the same pattern, because it was widespread rain that caused the changes in woody cover, not the projects.

Rather than supporting their position, the graph shows precisely what we have been arguing: where trees are actually growing in the carbon estimation areas, they would have grown anyway because rainfall, not grazing, is the primary determinant of the prevalence of trees and shrubs in uncleared rangeland areas.

The graph also confirms that proponents seem to have gotten away with claiming credits while forest regeneration has not been occurring. Forest cover has been flat while the credits kept coming.

The Australian public deserves an explanation for how this method has been allowed to stand when there are such manifest integrity problems, and why proponents have been credited for tree growth that has not occurred. Someone also needs to explain why the Regulator and ERAC put the above graph together in what appears to be a deliberate attempt to mislead people and deflect criticism.