

**RECOMMENDATIONS for ERF METHOD VARIATION  
for SEMI-ARID RANGELAND REGIONS of AUSTRALIA**

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**Introduction**

Most of the current suite of ERF (Emissions Reduction Fund; recently rebranded as the Climate Solutions Fund) vegetation methods enabling the creation of ACCUs (Australian Carbon Credit Units) within the semi-arid and arid rangeland regions of Australia are too narrowly focused, thereby severely limiting carbon farming opportunities across this vast area (Fig. 1).



**Figure 1** The rangelands of Australia include the vast semi-arid and arid temperate regions, and mesic alpine and tropical regions. (source not known).

For example, the *Human Induced Reforestation (HIR)* method [The Carbon Credits (Carbon Farming Initiative) (Human-Induced Regeneration of a Permanent Even-Aged Native Forest—1.1) Methodology Determination Variation 2016, came into effect on 17 March 2016], the only ERF method currently approved for use in Western Australia (WA), is high-risk and costly to implement because of the difficulty in delineating Carbon Estimation Areas (CEAs) due to very restrictive criteria including the ‘forest’ definition for eligible vegetation.

Current limitations which are inhibiting much more extensive application of the *HIR* method in the WA shrublands and woodlands and other similar regions in South Australia, New South Wales and Queensland are outlined in the section below. Suggestions for method variation or amendment are provided in the last section (*Recommendations*).

### **Limitations of the Human Induced Reforestation (HIR) method**

Specifically, the current *HIR* method (2016) is limiting because:

1. The patchy, heterogenous nature of woodland and shrubland vegetation, typified by the extensive mulga lands of the southern rangelands including the Goldfields of WA, makes the task of identifying and monitoring areas of eligible vegetation challenging and costly.
2. The narrow focus of the method does not account for the vast majority of the vegetative carbon sequestration that would come about from appropriate changed land management. Specifically, the method is only applicable to a limited area of degraded mulga land in the WA southern rangelands and Goldfields that meet the 'forest' criteria. That is, no more than approximately 20% of the area of most pastoral leases, ruling out very large areas of the WA rangelands (Fig. 2) and across Australia.

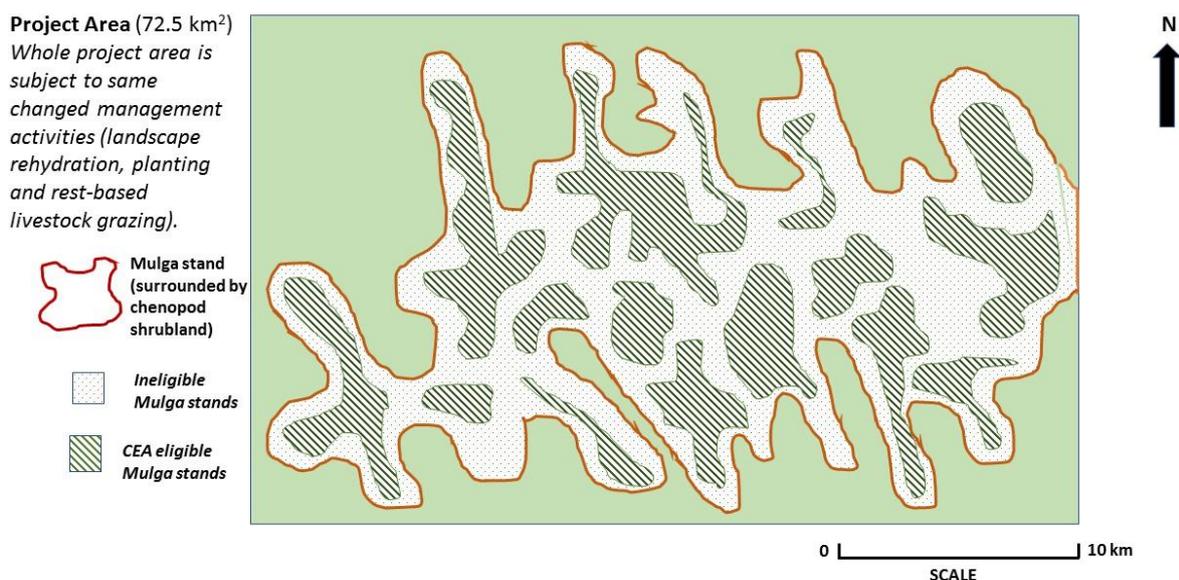


**Figure 2 Pastoral (dark green) and non-pastoral (light green) rangelands of Western Australia. Intensive agricultural region (mid-green) in SW of the state.** (source: Department of Food and Agriculture Western Australia, 2017).

3. Points 1 and 2 above are linked by the limitation imposed by application of the 'forest' criteria (tree height and canopy cover) to determine eligible vegetation. While it is understood that it is necessary to account for carbon sequestered by (true) forest (as required by the Kyoto Protocol)

in Australia’s National Greenhouse Gas Inventory, this should not dictate application of the ‘forest’ criteria in vegetation types where it is clearly inappropriate and unnecessary to do so.

Figure 3 below is a diagram of one of many real-life situations which illustrates the nonsense of applying current HIR ‘forest’ criteria in mulga (*Acacia aneura*) and mallee (*Eucalyptus spp.*) type vegetation. Given the highly variable density of woodland and shrubland vegetation such as mulga, less dense areas not meeting the ‘forest’ criteria, that is, areas currently not eligible for inclusion in CEAs, would however, in most cases, still be subject to the same changed management as the CEAs. The fundamental question is “*Why not include these currently ‘ineligible’ areas in the carbon accounting so as to contribute to the generation of ACCUs, valuable to both the project proponent(s) and the Australian Government in meeting our Paris Agreement emissions target for 2030 and beyond, and, importantly, helping to provide opportunities for improved socio-cultural and environmental outcomes over much larger areas than is currently allowed?*”



**Figure 3 Diagram of a Project Area (PA) located within heterogenous mulga shrub/woodland showing numerous Carbon Estimation Areas (CEAs) containing eligible ‘forest’ vegetation, sitting in a ‘sea’ of ineligible ‘forest’ vegetation. The whole PA is subject to the same changed management regime.**

- 25 years is currently the only permanency option in WA because the existing pastoral lease tenure periods are less than 100 years. Given that mulga (*Acacia aneura*) and other rangeland tree species are slow growing, they may not attain the 2m height or 20% canopy cover (forest definition) within 25 years. Tree growth is impaired by fire, drought, flood, defoliation by storm and pest invasion.

5. The *HIR* method does not currently recognise changed fire management as an eligible activity for a carbon project but is recognised as one of the important land management activities in regional natural resource management (NRM) plans.
6. The *HIR* method does not take into account any increases in soil organic carbon (SOC) through changed land management. An increase in vegetative biomass carbon stocks, above- and below-ground, is very likely to have a concomitant increase in the SOC stock, albeit, with a time lag. The SOC pool should be an option for inclusion in the total sequestered carbon stock.

Currently, restrictive *HIR* method criteria result in significantly large missed opportunities to account for all or most of the potential sequestered carbon pools, in turn, resulting in reduced carbon farming income and reduced socio-environmental co-benefits through changed management regime such as rest-based grazing, maximising ground cover, improved fire management practices and rehabilitation of degraded areas over much larger areas than is currently achievable.

### ***Recommendations***

There are three primary recommendations:

- i. To develop a variation to the current *HIR* method (2016), perhaps called '*Whole of Landscape*' or the '*Rangelands*' method. This variation is urgently needed to maximise 100% of the available carbon stock, applicable for all vegetation types and a variety of land management activities for the pastoral and non-pastoral rangelands of Australia. This method variation should allow the option to include any or all of the sequestered carbon pools (above- and below-ground biomass, SOC, and, where applicable, greenhouse gas emissions reduction through wildfire mitigation by early dry-season spinifex/savanna burning or low-intensity prescribed burning of shrub- or woodlands. Incorporation of a prescribed burning method within a variation to the current *HIR* method is required for sub-600mm rainfall areas. This would be an emissions reduction complementary activity (decreasing the risk of hot summer fires wiping out vegetation systems).

Note: High-quality, high-resolution geospatial 3D remotely sensed imagery, acquired by satellite, piloted aircraft or Unmanned Aerial Vehicle (UAV), is now available to determine vegetation parameters such as fire fuel loads, tree height, canopy cover and species. Field sample vegetation plots within the image capture area allow calibration and validation to provide confidence in the accuracy of data extracted from the imagery.

- ii. Develop a cost-effective method to measure rangelands soil carbon in areas such as deep alluvial flood plains where SOC sequestration is more likely to be economically viable. The authors are

aware that a considerable amount of research into measuring SOC has and is being done, but none yet has translated into a low-cost method suitable for extensive rangeland areas.

- iii. Make the Safeguard Mechanism more stringent by tightening the baseline obligations, including mandatory declining baseline emission limits, to ensure emitters are reducing their carbon emissions and/or need to offset i.e. reduce the risk of non-compliance and to create more demand for local carbon credits.

Regards,

A group of concerned rangeland ecologists and carbon farming consultants.



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