

# Profitable Carbon Farming

## Savanna Burning



### How it Works

The Savanna Fire Management Methodologies are an Australian Government initiative established under the Emission Reduction Fund (ERF) aimed at reducing carbon emissions in line with the nation's commitment to reducing greenhouse gas emissions.

Savanna fire is a source of global greenhouse gas (GHG) emissions. In Australia, savanna fire contributes about 3% of annual GHG emissions reportable under the Kyoto Protocol.

Under the ERF, GHG abatement is achieved either by reducing or avoiding emissions, or by removing carbon dioxide-equivalents (CO<sub>2</sub>e), methane and nitrous oxide, or by removing carbon dioxide from the atmosphere and sequestering carbon in trees and other woody material on the ground or in the soil.

The 2018 Savanna Burning methodology, known as the 'Determination', allows projects to claim both increased amounts of sequestration and emissions avoidance, or just emissions avoidance alone, resulting from changed fire management, by applying activities suggested by the Determination.

Savanna Burning abatement activities involve the application of a strategic early dry season (EDS) dominated burning regime and wildfire suppression, to reduce the risk and extent of late dry season (LDS) wildfires.

Patch mosaic burning has been practiced by indigenous Australians for thousands of

years and, if used strategically, reduces the risk of hot fires spreading in the LDS, reducing the extent of fires overall and reducing the emissions from any areas burnt, as EDS emissions are nearly half LDS emissions. Under the Savanna Fire Management methodology this practice helps to reduce the levels of the greenhouse gases methane (CH<sub>4</sub>) and nitrous oxide (N<sub>2</sub>O) released by fire.

Farmers and land managers can earn carbon credits by reducing CO<sub>2</sub>e emissions on the land and through sequestering carbon. In the Determination, emissions are calculated for a baseline period prior to the start of the project, either 10 years (in the case of the high rainfall zone) or 15 years (in the low rainfall zone).

Crediting of Australian Carbon Credit Units (ACCU) is based on subtracting the annual emissions, during the project period, from the baseline emissions, the difference being the abatement.

A savanna burning project could benefit anyone who manages tropical savannas in the north of Australia, including Indigenous land managers and ranger groups, pastoralists, state government agencies, and other land managers and landowners. For indigenous landholders, savanna burning involves people working on country in traditional land management activities, delivering social, cultural and environmental benefits.

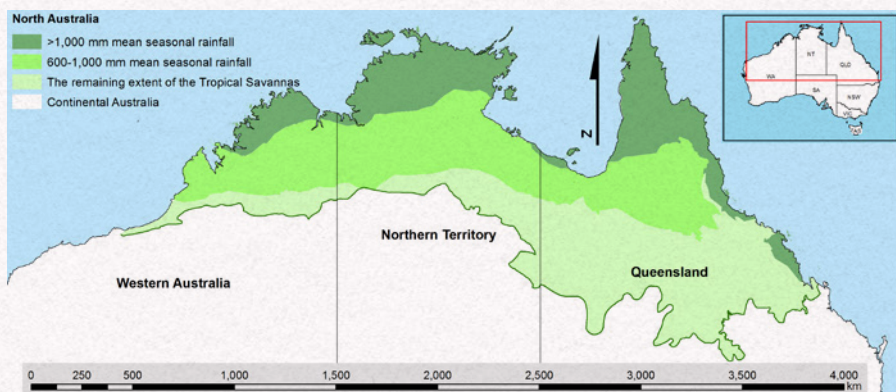


Figure 1: Savanna burning high and low rainfall zones Source: Darwin Centre for Bushfire Research.

### Case Study

A land manager registers an emissions avoidance project and applies the savanna burning methodology to areas within the 167,820-hectare property. The Savanna Burning Abatement Tool (SavBAT) is used to calculate the potential greenhouse gas savings (abatement). Over three years from 2016 - 2018 the Emissions Reduction Fund Register for the property shows a total of 66,039 ACCUs issued, an average of 22,013 ACCUs each year (1 ACCU = 1 tonne of CO<sub>2</sub>e).

Based on the average price in the March 2020 ERF auction of \$16.14 the ACCUs generated from the property above could turnover around \$1.06 million for the 3-year period or \$355,289 thousand annually.

These figures exclude transaction costs and the operational and management costs to implement the Savanna Burning methodology. An indication of abatement costs from the Western Arnhem Land Fire Abatement<sup>1</sup> project suggests cost of around \$12.4 per tonne which at \$16.14 would realise a profit of \$4 per tCO<sub>2</sub>e or ~\$90,000 annually.

### Rangelands NRM

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## Eligibility

A savanna burning can only be carried out in northern Australia (See Figure 1) which receives, on average more than 600mm of rainfall annually. The methodology is separated into two different parts and covers two rainfall zones, low annual average rainfall zone (600–1000 mm) and the high average rainfall zone (>1000 mm).

A savanna fire management project must have the objective to avoid emissions of methane and nitrous oxide from the burning of savannas compared to the emissions avoided during the baseline period.

The project area must include one or more vegetation fuel types defined as eligible in the Savanna Technical Guidance Document, and the project area must not include relevant weed species (e.g. Gamba grass).

## Sequestration

There are two ERF savanna fire management methods. One covers emissions avoided from project activities; the other covers emissions avoided as well as emissions sequestered (i.e. carbon stored).

A project can combine the relevant fire methodologies, or undertake emissions avoidance, but cannot register for sequestration alone.

The intention of low intensity, early dry season fires is to reduce emissions of the greenhouse gases - methane and nitrous oxide - and dead organic matter (coarse and heavy fuels) are not consumed by less severe fires resulting in an increase in carbon storage.

Projects must not increase greenhouse gas emissions from other sources, such as livestock or alter the rate of the decomposition of organic carbon. For example, projects cannot increase stocking rates above those that would otherwise occur in the absence of the project, in an attempt to reduce fuel loads and hence modify fire activity. Projects can't undertake activities that would increase the rate of decomposition of organic carbon, for example, projects cannot undertake activities that increase water content, or increase the activity of termites or other organisms involved in decomposition.

Projects incorporating both carbon storage and emissions reduction would generate a greater number of ACCUS. However, sequestration projects have a carbon maintenance obligation to ensure that carbon is stored for the entire project period, either 25 or 100 years. This permanence obligation means that savanna fire management must continue throughout the full life of the project, and if a proponent opts out before the end of the permanence period then they will have to pay back their credits.

If projects are registered only for emissions reductions, these projects can operate year to year, without any longer-term permanence commitment.

## FAQs

The Department of Environment and Energy have created the Savanna **Fire Management Methods – Frequently Asked Questions** to assist in understanding the 2018 determination for savanna fire management methods.

The Department FAQs points out that, fire management can occur at any time of year and can include igniting fires from aircraft, from vehicles along the sides of roads and tracks, from boats on waterways, or by walking across country. Fire management can also involve suppression activities. The specific location and timing of burning will depend on landscape features within the project area and local weather conditions. Fire management should also take into account cultural and environmental management factors.

It outlines that the same fire management activities are involved for savanna fire management sequestration and emissions avoidance projects, and emissions avoidance (only) projects. The main difference between the two project types is the permanence obligations under the ERF which only apply to sequestration offsets projects.

The document also explains terms such as, the crediting period, permanence obligations, permanence period, carbon maintenance obligation, and the reporting period.



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