

# Key Characteristics of Quality Savanna Burning Projects

Savanna Burning projects are critical climate solutions as they reduce greenhouse gas emissions by implementing a strategic fire management program.

# What is Savanna fire management method?

As the climate clock ticks in, corporations find themselves pressured to direct their attention towards emission reduction and consequently considering to invest in carbon removal projects. This path will help them achieve net-zero targets and comply with upcoming Government regulations. Unfortunately, the methodology, cost, and quality of these projects vary significantly, and it can be difficult for businesses to understand the true impact of the projects they select.

In this article, we will review why Savanna Burning methodology is one of the most proven, high-value carbon removal options. We will also explain indicators of high-quality projects under this methodology to ensure your company invests in the best impact carbon removal.

## But first, what are Savanna fire carbon projects?

The methodology consists in early season burning, which is characterised by 'cool' planned burns and relatively low greenhouse gas emissions. At this stage fires are typically of lower intensity, smaller, and more patchy. Doing these practices on time, can prevent and reduce the scale of unexpected late bushfires.

These fires are prematurely implemented since late season bushfires are much more damaging and generate much higher greenhouse gas emissions than early season planned burning [1]. In addition to this, studies based on previous projects suggest that a regime of frequent, low-intensity fires is likely to promote the development of a diverse, high biomass tree layer in savannas [2].

Is worth mentioning that projects under this methodology largely align with traditional land management practices and make use of locally available land management skills and knowledge.



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# Understanding the difference between methods



## Emissions Avoidance

An emissions avoidance activity involves an activity to stop or reduce greenhouse gases going into the atmosphere. The activity is viewed as one-off and its outcome permanent: if it ends, the greenhouse gases do not go back into the air.



## Sequestration

A sequestration activity involves something that stores carbon – for example planting trees. For sequestration, the activity is ongoing and the outcome not necessarily permanent – if the trees are cut down, the greenhouse gases go back into the atmosphere, so therefore the activity must continue (under the ERF, for 25–100 years). This is referred to as ‘permanence’. [3]

## Under what category does Savanna Burning fits?

Most types of carbon projects are either an emissions avoidance project (e.g. reducing fuel consumption in the transport sector) or a sequestration project (e.g. planting trees on cleared land). However, Savanna Burning is unusual in that the activity of fire management can earn carbon credits from both emissions avoidance and sequestration. This is because the activity of savanna burning reduces greenhouse gas emissions in two ways:

- 1) By reducing the amount of greenhouse gas emissions from big late dry season fires (called Emissions Avoidance); and
- 2) By increasing the amount of carbon stored in the landscape through reduction in fire (called the savanna burning Sequestration method).

There are significant differences between the two methods in how credits are issued, and the ongoing risks and obligations to land managers.

At Ozwide Carbon we research each methodology and choose the project that has the best environmental and social impact.



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# Savanna Burnings: a powerful carbon removal strategy

There are numerous ways to remove carbon from the atmosphere, some strategies include common approaches like growing trees (sequestration) as well as more innovative technologies like direct air capture which scrubs CO<sub>2</sub> from the air and sequesters it underground. And then, there is a practice that has been implemented for thousand years by the Traditional custodians of our country: 'Fire-stick farming' (Savanna Burning).

Fire abatement projects, particularly Savanna Burning, besides reducing greenhouse gas emissions, provide unique opportunities for employment and economic development on Aboriginal land. Research conducted as part of the West Arnhem Land Fire Abatement project showed the reintroduction of customary burning practices by Aboriginal ranger groups was highly effective in reducing late dry season fires and therefore cutting greenhouse gas emissions [4].

The Department of Primary Industries and Regional Development in WA highlights the positive impacts of planned and managed fires [5]:

They maintain biodiversity and conservation values: Early dry-season managed fires are relatively cool and slow moving compared to late dry-season wildfires. Creating a mosaic of burnt patches across the landscape can have significant benefits for biodiversity, particularly for survival of native fauna that require areas with differing fire histories. In the northern rangelands, biodiversity depends on a mixture of early-burnt, late-burnt and unburnt country with vegetation at varying stages of maturity since the last fire. This is known as a 'mosaic' or 'fine-scale mosaic' burning regime. Biodiversity maintenance over the long term in some low rainfall or high value conservation areas depends on the absence of fire for very long periods



Reduce greenhouse gas emissions: These fires are hot and intense and tend to burn most of the fuel available, which results in large emissions of greenhouse gas. By contrast, fires in the early part of the dry seas on burn cooler because the fuel is not as dry, and release fewer emissions [6].



Reduce the potential damage from wildfires: In the early dry season, vegetation is green and retains a lot of moisture, so fires at this time tend to burn at relatively low intensity and tend not to cover vast areas. Burns are implemented in such a way to create a pattern of fire breaks, and to reduce the fuel load across the landscape. The effect is to limit the spread of destructive late dry season wildfires, and crucially, to maintain patches of old-growth (or 'long-unburned') vegetation in the landscape, which provide shelter and food for wildlife [6].



Improve pasture utilization by influencing livestock grazing behaviour: Animals prefer to graze the fresh 'green pick' produced when soil moisture is present after burning. Livestock will tend to move to the fresh green pick on burnt patches, and this reduces overgrazing of unburnt preferentially grazed patches, the result is that a greater percentage of the pasture is consumed by livestock and converted to livestock growth.

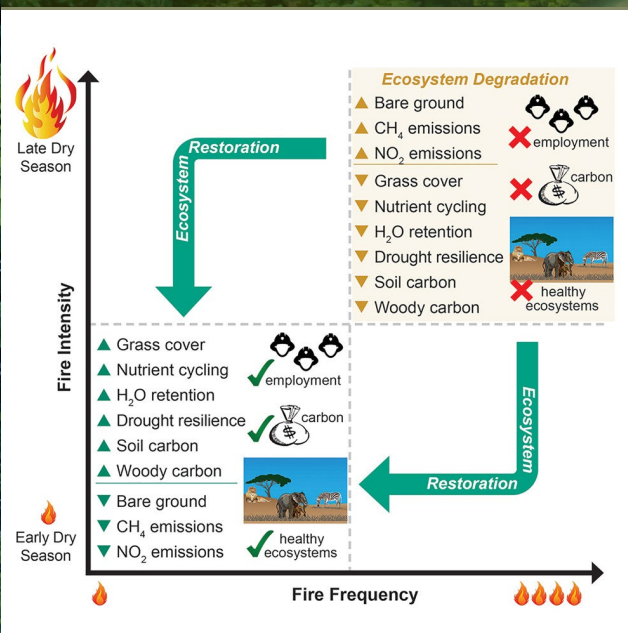


They reduce woody plants in grassland: The intrusion of shrubs into grasslands is often considered a problem because it reduces the amount of forage available for livestock grazing and can lead to more bare ground patches and subsequent increase in soil erosion. The control of woody plants by planned fires is precisely how grasslands remained grasslands historically.



# Global cases

## AFRICA



Recent studies in Africa suggest that Savanna burning methodologies [7]:

- Could generate carbon revenues for many protected areas in Africa;
- When combined with soil and woody carbon pools the potential is significantly greater;
- Potential carbon revenues from fire management could substantially reduce protected area funding gaps; and
- Investing in fire management will help restore degraded African savannas and conserve imperiled keystone herbivores and apex predators.

## AMERICA

Some specific examples of planned fire's value to wildlife in North Carolina's are [8]:

- Grasses, legumes, and other herbaceous plants germinate and flower following a fire and harbor insects and produce seeds beneficial to quail, turkeys, and songbirds. This lush growth provides cover for small mammals and young turkeys and quail;
- Fire burns away much of the leaf litter on the forest floor and exposes insects and seeds. Many wildlife species move into recently burned areas to feed on these newly available foods;
- Many shrubs produce more fleshy fruit 2 to 5 years after a fire than they would if they had been in an area that had not been burned; and
- Young hardwoods that sprout back after a fire have more available protein and phosphorus and are more palatable to white-tailed deer and eastern cottontails than their unburned. Low ground cover and patches of shrubs are typical of frequently burned areas. This varied pattern of vegetation provides protective cover and abundant insects for some songbirds and young turkeys and quail.



## FACTS

Cultural burning is a practice not limited to Australia. Other indigenous peoples applied the same technique, for example the Indigenous Peoples of Canada.

The Northern Territory started supporting cultural burns on public lands from the early 1980s, New South Wales not before 2017 [9].



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# What makes Savanna Burning a high-quality project?

It is imperative to consider all possible solutions to address climate change, however not all solutions are as reliable and transparent as others. This is why it is essential to identify the key characteristics that make nature-based carbon removals, like Savanna Burning, a better option. At Ozwide we have identified three key characteristics that make a Savanna Burning project a quality one:

## Right Conditions



- A project needs to be in an area that receives greater than 600mm of rainfall per year on average.
- A project must include (an) eligible vegetation type(s) for the type of Savanna.
- Timing, frequency and intensity of the fires are key to avoid greenhouse emissions in large scale. For example, in early dry season.

## Right Purpose



- To transparently create carbon credits, the burnings need to be conducted on a land prone to large fires. This will avoid higher damage and larger emission as less country is burnt and less methane and nitrous oxide is released into the air.
- A project is not required under an existing law, is new and is not likely to be carried out under another Government scheme. See FACTS below.

## Right people



- Local communities that aren't on board with a project can cause it to fail in a number of ways. In contrast, fully engaged communities can become vital in monitoring the burnings as they have the traditional knowledge and experience.

**FACTS-** To ensure the integrity of a Carbon Project, the offset must [10]:

1. Be real and measurable: one credit should correspond to one ton of atmospheric carbon dioxide (or its equivalent to GHGs) that is reduced, avoided or otherwise removed.
2. Be long lasting: It's tempting for an entity to sell a carbon offset today and then chop down a forest tomorrow. The general convention is that captured CO<sub>2</sub> - reducing action should remain in place for about 100 years.
3. Offer incremental gains: if an offset offers a CO<sub>2</sub>- reducing action that would have happened anyway, it should not be certified.
4. Be unique: a credit can not be applied more than once. Once retired, it can't be resold. This is a difficult measurement and enforcement standard one that organisations are working hard to quantify and certify

# Identifying High Quality Savanna Burning Projects



## High Community Engagement

Signs: community consultation and benefits such as educational programs or alternative sources of income



## Suitable for the area

Signs: area that receives greater than 600mm of rainfall per year on average, include (an) eligible vegetation type(s) and conducted in early dry season



## Planned for long-term

Signs: The person / entity registering the carbon needs to demonstrate that they have the legal right to carry out the project for 25 years.



## Ongoing Monitoring

Signs: frequent data updates on Savanna development and following burning planning based on collected data



## Minimal Community engagement

Signs: low prices, no documentation of community consultation and no community benefits



## Not suitable for the area

Signs: low diversity of eligible vegetation or not fully classified as a savanna



## Unnecessary Carbon Project

Signs: location is not prone to large scale fires



## No Ongoing Monitoring

Signs: little effort made to update investors on the project status and following year's fire



# What is the difference between Projects with or without Aboriginal Co-benefits?



The co-benefits of carbon offsetting projects offer a unique opportunity to address environmental and social challenges in an integrated manner. In addition to carbon emissions reduction, these projects can generate additional positive impacts such as enhanced biodiversity, habitat protection, creating employment, helping people to live and work on country, improving health and education, and providing access to clean and affordable energy.

This opportunity has generated a demand for stricter standards and effective procedures to demonstrate the adequacy of projects' environmental and social claims and to ensure that co-benefits are properly assessed and verified.

Savanna fires completed by non-indigenous organisations do not create credits with Co-benefits even though they may use the same techniques or methodologies.



Project that directly engage indigenous experts to conduct the fires, create certificates with co-benefits, which means that revenue stream goes back to indigenous communities.

It is imperative that corporations consider the overall impacts of their offsetting efforts, going beyond the mere metric of reduced CO2 tons, and evaluate their ability to take concrete action beyond CO2 reduction.





Planned burnings are a crucial climate solution with both carbon and beyond-carbon benefits, but it faces some key challenges. What would be the biggest challenge for this methodology in the long run?

Savanna ecosystems are vulnerable to climate change and it is not clear whether Australian savanna systems will undergo similar regime shifts as African savannas do. Australian savannas are dominated by *Eucalyptus* and *Corymbia* woody species that have a significant resprouting ability that may confer greater resistance to fire mortality than African species. Systematic studies of the region are needed to sustainably manage these ecosystems. [11]

## Forestry Dominance

Experts studies show that fire management and climate change can strongly influence the amount of carbon stored in north Australian savannas. Thus, climate change may increase carbon storage in vegetation by c. 2.8 to 5.4 Pg C in 2100.

This effect can potentially be explained by CO<sub>2</sub> fertilization effects on C<sub>3</sub> vegetation and by increasing water-use efficiency at elevated CO<sub>2</sub> concentrations. In the study, these factors translate into a competitive advantage of trees over grasses, suppression of grass growth, reduced fire activity and hence vegetation shifts towards tree dominance. [11]

## AU holds a strong Position

Even though the methodology still requires further study, a research conducted in 2021 suggests that the current Savanna Burning program implemented by the Australian Government, compared to other countries, offers ultimate and ideal benefits to both the environment and traditional communities [12]. The incentive has empowered local indigenous people to reconnect to their traditional lands and fulfil their cultural obligations and a diversity burning practices.

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