Hazard Reduction Prescribed Burns – Case Study 1

Project:
Sunwater Hazard Reduction Burns, Burdekin Region in North Queensland

The Scope:
Centrogen was selected for this project due to our extensive experience in this work across North Queensland. Centrogen has provided hazard reduction burn planning, implementation and monitoring for Sunwater for a number of years. For this project we provided a comprehensive service including:

- Site mapping
- Burn planning including firebreaks, ignition points, burn directions and traffic control
- Securing appropriate permits
- Notifying neighboring property owners
- Slashing and/or grading of appropriate firebreaks, containment lines and access tracks
- Staffing and resourcing burns, mop up and monitoring
- Record keeping including times, dates, weather conditions, wind speeds, ignition points, burn reports, successes, challenges and opportunities
- Client reporting

Fig. 1: Track used as an effective firebreak

Challenges and Innovations:
Centrogen's customised approach to assessment, risk and project implementation often uncovers new challenges and a requirement to be innovative to overcome challenges.

For this project, Centrogen developed a five year mosaic burn plan across Sunwater's 8,803 hectare network of properties, however climatic conditions led to lower fuel loads in some areas. Neighbouring and on-property land uses also impacted upon the initial plan due to cattle agistment, fencing and other factors. As some blocks were removed from annual burn plans, Centrogen's Project Manager utilised their extensive local knowledge, ecological understanding and project management skills to identify and propose alternative areas for inclusion.

This adaptable approach provided the client a quality outcome, value for money and an evolving plan as Centrogen was able to resource the additional burns simultaneously with those already scheduled. A key outcome is a reduction in the number of burns to practical levels in future years, now possible through substitution rather than suspension.

Sound Judgment and Discretion:
Centrogen has a long reputation of providing value for money to our clients. Our customised and uniquely flexible approach to work scheduling and resourcing enables us to:

- Minimise mobilisation / demobilisation costs by undertaking similar jobs concurrently
- Schedule activities based on intervention levels that incorporate vegetation growth rates and weather conditions rather than on rigid activity cycles.

This project is a typical example of how Centrogen exercises sound judgment and discretion to maintain safety and cooperation of staff and the numerous stakeholders involved.

The Sunwater area encompasses a number of stakeholders within the burn plan management area. There was extensive liaison with the neighbouring landholders to ensure they were satisfied with the planned process and expected outcomes. The flexible approach and quality outcome achieved in this project soundly demonstrates the effectiveness of Centrogen's systems.

Competency and Record of Achievement:
Centrogen undertakes many different types of contracts from one off projects to long term systematic environmental management.

This contract was a two year contract with a possible three one year extensions. Centrogen has successfully secured extensions in this contract and is currently planning burns for the next contract period.

Due to the initial assessments of this project and the risk minimisation strategies applied, some changes were made during the first year to ensure that firebreaks were properly constructed and in suitable areas. These have all since been modified as requirements change and any alterations have been reconfirmed in the following year's assessments to ensure continued high quality outcomes.

Due to its nature, fire is a high risk undertaking, and during this contract there has only been one incident where a fire jumped into a neighbouring block. This fire burnt through a section of track that a farmer had created.

Actions undertaken to prevent any further damage or other incidents included the implementation of the Centrogen safety action plan which contained the incident. The jump occurred during the early morning and was noticed by crews undertaking follow up checks. The area was secured and a grader was brought in to place an additional break around the fire to ensure that the break would hold.

Fig. 2: On-ground ignition via drip torch

No persons were injured during the incident and the only infrastructure was a small section of fence, which Centrogen replaced. Client concerns regarding the current and future firebreaks were raised, discussed and dealt with effectively and efficiently, resulted in a satisfactory outcome for all parties, and improved future planning.

Hazard Reduction Prescribed Burns – Case Study 2

Project:
Shoalwater Bay Training Area Environmental and Hazard Reduction Burns in Central Queensland

The Scope:
The Department of Defence has a responsibility to protect personnel and assets, maintain the environment and protect native fauna and flora. Centrogen was contracted to undertake prescribed burns in the Shoalwater Bay Training Area (SWBTA) to control the spread of wildfire caused by Defence training or natural causes.

Centrogen currently undertakes large scale burns in this area, maintaining fire break lengths of up to 77km in some instances, and covering a total area 454,500 hectares of bushland. The tasks required included but were not limited to:

- Site mapping
- Burn planning including firebreaks, ignition points, burn directions and traffic control
- Securing appropriate permits
- Notifying neighboring property owners
- Slashing and/or grading of appropriate firebreaks, containment lines and access tracks
- Staffing and resourcing burns, mop up and monitoring
- Record keeping including times, dates, weather conditions, wind speeds, ignition points, burn reports, successes, challenges and opportunities
- Defence reporting
- Environmental planning and weed mapping.

Fig. 3: Patch burns for environmental outcomes

Challenges and Innovations:
The land area of SWBTA is listed on the register of the National Estate, and most of the adjacent water lies within the Great Barrier Reef Marine Park. The area is a valuable conservation reserve and, although SWBTA is used for training, Defence has a responsibility to protect the attributes contributing to the National Estate values of the area.

These requirements necessitate strategic planning to ensure burn plans maintain Defence requirements and maximise the program efficiency and environmental and safety outcomes. To address this, Centrogen employed aerial incendiaries to create a mosaic burn, resulting in a variety of remaining fuel ages and maintaining ecological diversity.

Centrogen employs aerial incendiary operations to conduct landscape scale burns and burns in areas of difficult access. Centrogen uses incendiary devices that are similar to ping-pong type balls containing a small amount of Potassium Permanganate (Condi's crystals). These are then injected with a carefully predetermined percentage of glycol and water mix. The incendiaries are dropped from an aircraft.

Centrogen uses helicopters or light aircraft for aerial incendiary operations, with a flight crew of a pilot, navigator, and bombardier. A helicopter is used as opposed to a light aircraft as this allows for more accurate placement of Aerial Incendiary Devices (AIDs).

Flying to a pre-arranged flight plan, the navigator selects sites in which to drop the incendiary devices. On completion of the ignition run, an aerial review of ignition points is carried out to determine the

initial scope and behaviour of the fires. An on-ground crew provides surveillance and service for the aircraft crew.

Our bombardiers and navigators are qualified and highly experienced in aerial incendiary application. We employ aircraft contractors who are familiar with Centrogen's prescribed burning techniques and understand how we integrate wildfire prevention or firebreak creation with ecological outcomes. All our aircraft and aerial incendiary devices meet Civil Aviation Security Authority (CASA) specifications and are certified accordingly.

The use of aerial incendiaries provides maximum value for money for the client and maintained Defence's environmental obligations.

An equal priority was the requirement to not allow fires to impact upon neighbouring properties. As a result of our comprehensive risk management planning process, Centrogen implemented a system of dual firebreaks around the boundary to provide extra width and minimise off-site ember transfer, even where large amounts of fuel was present near the fire breaks.

Sound Judgment and Discretion:
Centrogen's planning process routinely incorporates critical assessment of risks within each project. This enables recognition and mitigation of risks. This process was applied to the SWBTA project and provided for sound judgment and discretion throughout the project in regard to maintaining safety, security and confidentiality around military training activities. Centrogen liaised with Defence and applied effective communication processes with Defence representatives, negotiating access in accordance with their training schedules to enable burns to proceed with minimal disruption to Defence exercises. Daily briefs were held between Centrogen, Defence program representatives and Range Control personnel to ensure that the movements of each party were understood and personnel safety was maintained.

Competency and Record of Achievement:
The diversity of flora and fauna across SWBTA is vast and spread across a very large site. This also means there is a great deal of diversity of fuel type and quantity across the project site. Some variation of outcomes was experienced in this project, however all burns were sufficient to reduce risk of wildfire traversing the areas in the next couple of years.

Implementation of our detailed Quality, Safety and Environmental Management processes ensured that no injuries or incidents occurred while preparing for, or undertaking burn activities. Our thorough risk assessment and management approach also ensured that:

- All assets were located and protected in burn areas
- Optimal weather conditions were identified to provide cool
- Effective burns and robust record keeping enabled us to provide the client with valuable data and site photographs for monitoring and future planning purposes.

Centrogen's record of achievement in this region and with Defence work has ensured that they are the contractor of choice with high risk, difficult or large scale fire management.

Fig. 4: Visible aerial incendiary device ignition points