

m&e case study

Fire: Managing for biodiversity in protected areas and the broader landscape

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Fire management has a critical impact on the fire-driven systems of the Cape Floristic Kingdom. C.A.P.E. therefore supported research to promote the development of best practice for this region.

The newly established Fire Protection Associations (FPAs) provide an ideal vehicle for promoting best practice. FPAs include all landowners and plan to minimize and manage risk. Working on Fire provides important additional capacity for fire management.

The overarching goal of C.A.P.E. is the conservation of the unique biodiversity of the Cape Floristic Region. Fire is a key ecological process in this region, with many serotinous species dependent on fire to reproduce. However, in recent years people have started fires so frequently that slow growing species are unable to reproduce. In fragmented remnants of fynbos or renosterveld, surrounded by farmlands and urban areas where lives and property are at risk, fire needs to be closely managed.

Many landowners simply try to prevent fire, or else burn frequently to improve grazing and keep the fuel loads low. Conservation agencies are faced with the more challenging task of managing fire according to ecological principles in order to maintain biodiversity.

ESTABLISHING BEST PRACTICE

Recognizing the complexity of promoting biodiversity through fire management, the C.A.P.E. partnership sponsored the CSIR to undertake research on the impact of fire on protected areas in the Western Cape¹. The CSIR found that short interval fires (\leq six years) are becoming more common, particularly near large urban centres. Here the vast majority of fires are initiated by human negligence, whereas in some more remote areas lightning still causes the majority of fires. Fires occurred predominantly in summer and autumn, except in the southeastern coastal zone where winter burns were fairly common. The CSIR report recommended an adaptive management approach and provided guidance on:

- Monitoring fires (mapping scales, accuracy, minimum essential aspects to include, dealing with patchiness, use of remote sensing)
- Interpreting fire regimes (how to set thresholds for acceptable regime parameters in different vegetation types and parts of the biome)
- How and what to monitor in terms of ecological outcomes.

The findings of this review were communicated to the CapeNature Regional Management Staff. These suggestions build on a very strong existing understanding of fire management within CapeNature. The challenge is now to promote the use of these guidelines both within CapeNature reserves and also across the broader landscape.

Private landowners joining formal stewardship programmes receive assistance from CapeNature in terms of sustainable land management. Biodiversity-friendly fire management is included in the business plan which CapeNature develops for each stewardship agreement. In addition to planning, CapeNature also provides practical assistance with appropriate fire management, including maintenance of fire breaks, clearing of invasive alien plants and assistance with prescribed burns.

FIRE PROTECTION ASSOCIATIONS

In terms of the National Veld and Forest Fire Act 101 of 1998, the responsibility for the management of veld fires rests with the land user. The Act promotes the formation of Fire Protection Associations (FPAs) made up of local landowners and land managers who work together to predict, manage and prevent fires.

Under the Regulations of the Act, which were promulgated in 2004, all public landowners/managers are obliged to be members of their local FPA while private landowners are encouraged to join. This represents an important advance, as landowners are often key role players, owning large areas of land. Before this there was little formal involvement of private landowners. The effective implementation of FPAs across the Cape Floristic Region will, however, take time.

Within each FPA regional planning will be undertaken to identify local risks and hazards, and a business plan drawn up to describe how these risks can best be mitigated. Before the establishment of FPAs each landowner attempted to manage their own risk, sometimes using boundary firebreaks to prevent legal problems with insurance. Systematic planning will now be undertaken across the whole landscape and firebreaks will be placed where they will be most effective.

Contact details:

Mark Johns

Tel: +27 28 2715138

Email: mjohns@capenature

www.workingonfire.org

FPAs provide a forum to manage fire risk and could be used to promote biodiversity-friendly fire management.

FPAs have a mandate to develop regulations for their members concerning their fire management. This provides an important opportunity for including recommendations relating to the use of fire in conserving biodiversity. There is, however, often a conflict between management for safety and management for biodiversity. From a safety perspective landowners may prefer frequent fires which keep fuel loads low and they also prefer to burn in winter when fires are easier to control. The FPAs need to ensure that those undertaking controlled burns understand the profound impact of the frequency and season of fire on biodiversity and on the management of invasive alien plants. It is hoped that in the future the FPAs will also become a vehicle for standardizing all fire reporting so that the information can be used for long term research.

Each FPA has a Fire Protection Officer who inspects whether regulations are being observed and has the authority to issue a warning or a fine if a fire hazard is not properly managed. FPAs differ in their level of activity: Some, like the Helderberg FPA, have higher membership fees, and pay for a full-time FPO and may even have their own fire crew. In other areas, such as the Kogelberg and Theewaters, CapeNature staff are appointed as FPOs as they already manage large areas here and also have a good understanding of sound fire management.

Once a wildfire is identified the FPO/Incident Commander will assess the fire and call in the necessary support. Resources include ground crews brought in by CapeNature, City of Cape Town, or MTO Forestry and the Municipal Fire and Rescue Services provide firefighting units and personnel.

WORKING ON FIRE

Prior to 2000 there was a large labour force of 20-25 people on each reserve run by the then Cape Nature. These people formed fire crews when required and, as they were long-term employees, they developed a very high level of expertise. When CapeNature became a board the labour complement on each reserve was reduced to two or three people. This created a gap in fire-fighting capacity which has been addressed in two ways: Some reserves were able to pay for a team of 12 contractors to be on 24 hour standby for the four summer months when fire risk is highest. In the Boland this costs approximately R40 – R45 000 per month, per reserve.

Secondly, the South African government established the Working on Fire Programme in 2003. This highly effective programme aims to combine best practice wildfire expertise with job creation and skills development. The Working on Fire Programme has a number of centres in the Western Cape which provide crews on demand to FPAs and others who require assistance. This flexible capacity, which can be deployed where needed, is essential to the functioning of FPAs. As it is a job creation project there is a high turnover of staff, with team members only remaining in the programme for two years. The CapeNature permanent staff, therefore, continue to play a critical role as they have the experience to predict and manage fire behaviour.

Over 90% of unwanted fires are caused by negligence or ignorance. FPAs play an important role in communicating the risks of fire. The Fire Danger Rating System is provided daily as part of the weather report and alerts the public when the danger of wildfires is high. The prominence with which this information is displayed needs to be increased in order to reduce accidental ignition.

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Key Words:

Wildfire, Adaptive Management, Fire Protection Associations, Working on Fire

¹ van Wilgen, B.W and Forsyth, G.G. (2008). The historical effects and future management of fire regimes in the fynbos protected areas of the Western Cape Province. CSIR Report CSIR/NRE/ECO/ER/2008/0078/C.