

FIRE MANAGEMENT

PRACTICAL TIPS ON HOW TO MANAGE NATURAL ECOSYSTEMS WITH THE CONTROLLED USE OF FIRE

Is fire destructive to natural ecosystems?

Out-of-control fires can be devastating to life and property and very destructive to natural habitats that are not adapted for periodic fires. On the other hand, there are ecosystems which need fire in order to function optimally and maintain their biodiversity.

What are the advantages of fire?

In grassland, wooded grassland and some wetland forms, fire can enhance the natural processes in the following ways:

- It clears away the accumulation of leaf litter that may smother and hamper the emergence of more sensitive plant species.
- It helps to regulate the emergence and spread of woody encroacher and some alien plant species, thereby maintaining these ecosystems in a proper balance.
- Properly planned, periodic fires reduce the risk of run-away fires by reducing the fuel load.
- Many indigenous grassland plants have adapted to fire in a way that they need either the heat or the chemicals in the smoke, to germinate or flower.
- It can greatly improve the grazing quality of certain veld types.

When is the right time to burn and how frequently?

The intensity and speed of a fire is largely affected by the frequency and time of year that land is burned. If the interval between burns is too long, the accumulated fuel load can result in dangerously hot fires. If the burns are too frequent, plant cover begins to deteriorate due to a lack of rest periods, which are necessary for plant nutrient generation and storage. This is particularly relevant for grasses and sedges.



Grass coverage thinning from too frequent burning

- GRASSLAND AND WOODED GRASSLANDS should be burned on average once every two years - although one can burn the following year if there have been particularly good rains during the previous summer months, resulting in thick growth. Burning should occur just before or just after the first spring rains to ensure proper plant recovery (from mid-August to the beginning of September). However, as long as there were good rains during the previous summer, you could start burning as early as mid-July.

- **WETLAND SEEPS AND VLEIS** These can be burned every 3 to 5 years, unless accumulated leaf litter is considered to be high enough to become a fire hazard, or you use fire as part of an invasive alien plant control programme. The optimal time to burn a wetland (excluding open water systems) would depend on the amount of soil moisture and nesting waterfowl present. Burning wetlands at the height of the dry season, when soil moisture is at its lowest, can severely damage the plant cover. Avoid burning during times of drought. As a rule, don't burn unless the soil is still a bit soggy. The time of year that wetland birds are nesting can vary depending on the bird species present. It is important to identify the birdlife utilizing the wetland before deciding on a burn. Depending on the above, early autumn is often the most suitable time for burning a wetland.
- **FORESTS** Generally, there should be no reason to burn into a natural forest unless it is part of a programme to control the spread of bush encroachment into other natural habitats, such as grassland. When using fire as part of a management programme to combat bush encroachment (see ECOFILES Sheet 3), use a "hot" burn every two years and burn into the bush clump. This will suppress the emergence of woody growth on the periphery of the bush clump and open up the canopy in the centre. Larger, more hardy grassland or open woodland tree species within the bush clump are adapted to veld fires and will generally be able to survive such burns.

Why and when do I have to burn fire breaks

The **National Veld & Forest Fire Act of 1998** states that a property owner who allows a fire, originating on their property, to spread to a neighbouring property, causing damage, may be charged with negligence. Neighbours who have sustained damage to property may also file civil actions against a negligent landowner for the recovery of costs. Fire breaks are also a requirement of most insurance companies, when living close to potentially flammable habitats. It is, therefore, in every landowner's interest to ensure that their fire breaks are cut and burned before the fire season every year. The correct time to cut and burn fire breaks is early- to mid-May, but one could start earlier depending on how early the grass begins to dry. Fire breaks need to be in no later than the end of June. For a break to be effective it must be burned, not just cut.

Getting started

Putting in fire breaks and conducting controlled burns can be a very daunting task for someone who has never been exposed to these activities before. If you have not had previous experience with controlled burning, it is strongly recommended that you approach someone with the necessary experience and skills to guide you through the task. Ensure that they are at hand during the burning process as back-up should anything begin to go wrong. Here are some practical tips on how to get started and what equipment you will need for efficient and safe fire management of your property:

1. EQUIPMENT

a. Fire Beaters

- Make sure that you have the proper fire-fighting equipment prior to commencing with any controlled burning. Cut tree branches used as beaters will only invite trouble! Effective fire beaters can be made by securing three 1m-long strips of old canvas (never use plastic) fire hose to



Basic fire-fighting equipment.

the end of a hoe handle (strips of old conveyor belting also work well). These should be thoroughly soaked in water before use.

- Fire beaters in inexperienced hands can be dangerous. Beaters should be used with a side-swiping action against burning grass tufts. "Flopping" a beater down onto burning grass results in a side draft that will fan the flames and will result in burning ash landing in dry fuel, igniting areas that you may not have intended to burn!

b. Water

- Water is still the most efficient tool against veld fires. On small parcels of land it will be worth the cost to have a long water hose that can be used during controlled burning. Knapsack sprayers with low-pressure, high-volume nozzle attachments, that allow the user to drench flames, are the most efficient when one cannot use a hose pipe. It is advisable to have a mixture of beaters and knapsack sprayers, together with enough water to replenish empty knapsacks. For large properties that have an internal road or dirt-track system, it is useful to have a water cart nearby as back-up during burning operations.



Fire break along fence line.



Fire break.



Fire break ready to be burned. Note the tracer belts on either side of the central swath.

2. FIRE BREAKS

The first task is to always ensure that you have adequate peripheral fire breaks to guard against runaway fires crossing property boundaries. Internal fire breaks should be cut and burned around all areas of your property that need to be protected.

● Cutting a fire break

To create a fire break, cut a strip (known as a tracer), and leave a wide strip of uncut grass, then cut another tracer strip on the other side of this. In other words you would have a strip of grass with a cut strip on either side of it. The width of the break will depend largely on the size of your property, however, it shouldn't be less than 4 m. Tracers may be cut by hand, using a slasher or a brush cutter/ weedeater, or with the aid of a tractor-mounted slasher.

When dealing with wetlands, do not use a tractor inside the wetland area. Rather put your fire breaks just outside of the wetland. All cut grass is then raked up and spread evenly into the centre strip of uncut grass. This is then left to be burned as soon as the grass starts drying out at the beginning of the dry season. If the cut grass is not evenly spread, dense clumps will increase the fuel load resulting in ground temperatures high enough to damage top soil and plant roots.

● Burning

There are a number of devices used for igniting fire breaks and controlled fires, however, the simplest method is to rake a clump of cut, dry grass, using a metal hay fork, ignite it and then draw it, at a walking pace, through the uncut centre median. Once the centre median of a fire break is ignited, allow the fire to burn into the wind and outwards, from the centre and into the stubble of the cut tracers. Extinguish this BEFORE it reaches the uncut grass on the outer edge of each tracer. Position suitably equipped personnel on either side of the fire break and ensure that each person understands what is expected of them in terms of controlling and extinguishing fire. To ensure proper safety, it is highly recommended that not more than 15m of fire break is ignited at a time. Only once a 15m portion of the break has been properly extinguished, should one ignite the next 15m section. When moving on, it is advisable to leave one person behind to ensure that there is no re-ignition.

Starting your controlled burning programme

- Avoid burning on hot, windy days. The optimum conditions for burning are when the air temperature is below 20°C and the relative humidity is above 50%. The most appropriate time to burn is early in the morning after the dew has dried sufficiently to allow for ignition. Extinguish all fires as soon as air movement becomes noticeably more than a light breeze.
- When fire is employed as a management tool, a block-burning programme is highly recommended. This is where the land is divided up into separate management units by a series of natural barriers (rivers, dams, forests, etc.) and human-made fire breaks. These blocks can then be burned on a rotational basis, which is a more efficient management approach on larger properties. This is so that animals can move freely out of harm's way, and that there is a mixture of tall grass to hide in and short, more palatable grass to feed on.
- Always liaise with your neighbours, and ensure that they understand why you are burning and when you are most likely to burn, depending on weather conditions.
- Avoid burning on weekends and public holidays when most of your neighbours will be at home as this may be a nuisance.
- NEVER leave a fire unattended and make certain that fires are properly extinguished before leaving an area.
- Within the eThekweni Municipal Area (EMA), ALWAYS contact the **Fire and Rescue Services call centre on 031-361 0000** to ask for permission to burn, and to enquire about the fire index for the day.



Igniting the break.

For more information please contact:

- Ezemvelo KZN Wildlife, mortyk@kznwildlife.com
or 031 274 1150
- eThekweni Municipality Parks, Recreation and Leisure Department: Natural Resources Management Division; MkhwanaziSibusiso@durban.gov.za
or 031 311 6717
- eThekweni Municipality Environmental Management Department;
petersont@durban.gov.za
or 031 311 7011
- Your local Conservancy