

ECOLOGICAL BURN PROPOSAL FOR 2019



A) BURNING PLAN FOR THE GRASS VELD:

1. Motivation for such a burn

Fire is a helpful tool to remove moribund material and transforming dead unpalatable grass into a new nutritious vegetative layer. The burned patches will attract grazers and it's known that bontebok especially consume the regrowth. Several patches of moribund material are visible on the estate's grazing lawns. In order to remove the moribund grass (unpalatable grass that has grown itself to death) and increase biodiversity we have to burn sections of the estate's grazing lawns. A cool or low intensity fire is required and normally done before the first early winter rain, May – July (usually burn season as per Fire Department). This can be achieved by burning when the air temperature is <math><20^{\circ}\text{C}</math>, wind speed between 5-15km/h and the relative humidity is >50%. We should aim to burn at least every 2-5 years depending on rainfall, fuel load and carrying capacity. Springerbaai is in a winter rainfall area however, this has changed over the years. During winter the mornings and evenings are wet and therefore a burn during this period is critical as we don't want to dry out the soil, as soil moisture is critical to regrowth of grass.

The **effects of burning** on soil and vegetation is explained below:

Vegetation: The heat of a fire allows for germination of grass seeds and removal of shade for new seeds to germinate (reducing competition). You are increasing the life span of grasses during the growing season and during late growing season burned plots will have more biomass (more palatable, nutritious)

Soil: The black colour (energy entering soil) allows the soil to heat up and aid in seed germination and increase of bacteria. Fire affects soil moisture, temperature, fertility and water holding capacity. On sandy soils such as Springerbaai, nutrient losses are more likely due to the efficient drainage.

2. Preparations, size and timing of the burn

We will first have to calculate the carrying capacity/veld condition assessment of the estate (hopefully end of September/beginning of October 2018) before we can burn. This is done first to determine whether we even need to burn before implementing various veld management techniques. The method we will use, requires us to identify different species of grass, however we will have to wait until these species flower, which starts in spring and continues through to summer.

One should keep a close look at AFIS (Advanced Fire Information System) a few days before the burn, which will indicate if the conditions are suitable for a controlled burn. A permit is required from the local Fire Department and they should be contacted a day before the burn. Fransmanshoek conservancy and the local Fire Department will be contacted to assist during the burn. We have sections that seem promising for a successful burn, but we will have to reassess these areas after the veld assessment and at the start of 2019. These areas will either have excess moribund material or unpalatable grass which can allow more palatable grass to establish after a burn. Management will select which areas to burn in 2019 and propose to the trustees for approval. The areas will be shown on a detailed map.

The selected plots will be cleared of any small creatures and nests before the burn. We will have to divide the estate into small blocks (50 x 50m). The recommended size of 50x50m is recommended due to many reasons, however the main reason is due to the fact that the estate still has to provide

grazing pastures for the remaining game. If we burn too large sections, we are decreasing the carrying capacity. We also have to fence off these burned areas, therefore 50x50m will be efficient and affordable. For obvious reasons we can't burn the entire grazing lawn and therefore different blocks are burned each year, which can be alternated. This will be indicated on a map.

3. Subsequent management

After the burn, we should fence off the burned area as game will concentrate on these areas since the new growth is palatable and more nutritious (6-12 weeks rest). We have to ensure for root establishment and allow ground cover to establish and to prohibit any erosion or compaction (allow formation of soil pores for drainage to occur). If rainfall is insufficient, we will irrigate the burned patches. Photos will be taken through various intervals to record the effect of the burned patches. The first burn will hopefully be during May – August.

B) RHENOSTERVELD ECOLOGICAL BURN:

1. Reason for burning:

In order to prevent wild fires from spreading through the estate, a precaution can be taken to burn a 15ha section of renosterveld behind Phase 5. The current fuel load at this section is enough to be a cause for concern and thus if a fire spreads from the North East neighbouring property this section will aid the intensity of the fire. In natural conditions renosterveld will burn every 10 – 15 years allow new species rejuvenation, germination of seed beds and prevent species loss. There will be a possibility that the area will be watered with the fire unit if rain is insufficient. The ideal would be rain.

2. Precautions:

Before the burn is done, the present plant species diversity must be measured by a professional botanist. The post fire succession of the vegetation must be monitored regularly by management. After three years the plant species diversity before and after the fire should be compared to understand the ecological role fire plays on Springerbaai.

The proposal for the 15ha ecological burn is to divide the area into 25x25 blocks with a fire break of 5meters.

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