**2019-01-16 FIRE AND FYNBOS: A PARADOX –**

The Overstrand has been devastated by fires in the last week. We have seen the loss of houses and other structures, people injured and traumatised and the scorched animals that could not escape the flames fanned by gale forces winds. Above all we have seen the heroic efforts made by firefighters, both professionals and volunteers.

But what is the impact on the fynbos that is the most biodiverse in the world in terms of species density? It depends; the impact could be good or bad.

We all know that fynbos burns. In fact, it is the frequent fires in the Western Cape that has led to the great variety of species. Fire, hot dry summers, wind and poor soil quality have all put evolutionary pressure on plants to survive. As a result, the slightest variation in the genome gave certain plants a tiny advantage over others in a particular niche habitat, leading to speciation.

**Fynbos is both adapted and dependent**

Paradoxically, fynbos is not just adapted to survive fire, but it also depends on fire to continue to exist.

The soils on which fynbos grows are extremely poor in nutrients. Some species survive by forming symbiotic relationships with fungi or bacteria in the soil to access nutrients. However, after growing for 15 to 20 years, the plants have pretty much absorbed all the nutrients in the soil around them. They lose vigour and will eventually die. This is the time that fire has a critical role.

A fynbos fire stimulates new beginnings. The nutrients that were locked up in the plants are returned to the soil in the form of ash. The heat and smoke of the fire stimulates many different seeds to germinate in the nutrient-rich ashes of the parent plants. Other plants re-sprout from roots or stems that have evolved to withstand fire. A plethora of bulbous plants will only flower abundantly when the veld has been cleared of other vegetation.

Of course it’s not as simple as that. The timing and frequency of fires is crucial. Many species such as proteas need at least 10 years between fires to build up a sufficient seed bank to re-seed. The ideal interval between fynbos fires is about 15 years. The time of year of the fire and the rainfall pattern during the first year after fire are critical to the survival of many small seedlings and newly sprouted plants. The fires this last week, in the middle of the hot dry summer, came at the wrong time.

**When were the last fires?**

What do we know about the areas that have burned recently? Kogelberg burned about eight years ago. The fynbos there will probably recover, but it’s not ideal. Some species may be lost, but others may thrive.

Rooi Els burned less than two years ago. Its biodiversity will probably suffer, especially the proteas.

The western ‘leg’ of Fernkloof Nature Reserve burned exactly eleven years ago. After that last fire, the Hermanus Botanical Society monitored and documented everything that re-appeared. This will now be repeated, providing valuable information about fynbos regeneration in the reserve.

**Will the fynbos be the same as before?**

No, it will not. Differences in fire intensity and frequency, rainfall patterns in the ensuing year and many other factors will influence what species survive. But fynbos will survive – maybe in a slightly different form.

**What should we look out for?**

Within weeks of the fire, life will almost miraculously appear from the scorched earth. Re-sprouting plants have a major advantage after fire in comparison with plants that rely on seeds for germination.  A great example of a rapid re-sprouter is *Erica cerinthoides* (fire heath). Look out also for the spectacular fire lily (Cyrtanthus).

*Protea nitida* (‘waboom’) starts to sprout from buds under its thick protective bark.

Within a month Wild Asparagus (‘katstert’) will re-grow from its roots to more than a meter high and in full bloom.

After six weeks or so, the bright red flowers of *Haemanthus* (paintbrush flower) and *Brunsvigia* (candelabra flower) will appear all over the landscape. Prior to the fire, many of these plants will have been smothered by old, dense fynbos and now will be their first flowering appearance in many years.

Look out for the spectacular *Pillansia templemannii,* a member of the iris family. Other bulb species like *Watsonias* will also be spectacular in the first spring after the fire.

**Also a great opportunity**

Everyone who walks our mountains can contribute to the data about fynbos after fire. Record what you see – either by name or photograph with the date and place. At the end of each year, please send your observations to the Hermanus Botanical Society at botsochermanus@telkomsa.net.

It is commonly known that invasive alien species are the greatest threat to the survival of fynbos. There is now an opportunity that cannot be missed to make a dent in the numbers of aliens. This must be done within two years after a fire when the alien seedlings that come up can still be hand-pulled. It is by far the easiest and cheapest way to get rid of aliens. All it needs is commitment and manpower.

When the time is right, Whale Coast Conservation will ask for volunteers to “#lend-a-hand” together with other role players like the Hermanus Botanical Society and the Hermanus Hacking Group to fight for our fynbos.

Anina Lee

Whale Coast Conservation