

WOSA Fynbos

As part of a recent international conference in Stellenbosch, I attended a session at the Stellenbosch University botanic gardens. It was led by Dr Rupert Koopman, conservation manager of The Botanical Society of South Africa, and titled 'Understanding the heritage of indigenous plants, and why it matters'. Koopman took us round the gardens, where they have a large collection of indigenous plants, most of which form what is called fynbos. The name comes from the Dutch word Fijnboch which when translates as 'fine bush'.

It's one of the remarkable things about the Cape that people don't talk about enough: this southern tip of Africa has its own floral kingdom, and this is one of the best parts of the planet for plant biodiversity. The Cape Floral kingdom is one of six worldwide: the others are Antarctic, Australasian, Boreal, Neotropic and Palaeotropic. But this is the only one entirely within one country, and it's the smallest, covering just 90 000 km². This small area contains 3% of the world's plant species and 20% of Africa's, and the 8500 or so species of fynbos which makes up around 80% of the Cape floral kingdom. This level of diversity is remarkable, and even more so when you learn that two-thirds of these species are unique to this area, found nowhere else on earth.

As you travel through South Africa and look at the native vegetation, which is mostly small scrubby bushes and ground cover, from a distance it doesn't look that interesting. But look closely and you begin to see this diversity. Koopman points out that many of these species are highly localised, and new ones are frequently discovered that are limited to a very small geographic range. This also means that there's an innate fragility, with as many as 1700 fynbos plant species threatened with extinction. One of the threats is non-native plant species that have been planted, and which are invasive, such as eucalyptus and acacia trees. Another is the loss of habitat to urban expansion and agriculture. Koopman and his colleagues are often called out where habitat is soon to be lost to catalogue what is there, and if necessary relocate species. His team are also called on by law enforcement: there's quite a trade in harvesting fynbos from the wild and then selling these plants, which is illegal. When the police crack down on this illegal trade, the stolen plants that are confiscated end up with the various botanic garden collections, which creates quite a bit of work for the botanists.

How does this relate to wine? Well, currently in the world of wine, there is a lot of discussion about regenerative viticulture: looking at the vineyard as an agroecosystem where biodiversity is one of the key aspects. The more we can establish a vineyard as a functional ecosystem with many players, rather than a monoculture with bare soils, the better this vineyard is at supplying its own needs and managing pest and disease pressure. One of the elements of this regenerative viticulture toolkit is cover cropping. There's a lot of discussion about the best sorts of plants to add to the vineyard to get it working better. The likes of clover and other legumes are able to fix nitrogen; grasses help prevent erosion and can reduce vigour; and tap-rooting plants like radish can help improve soil structure. But in South Africa, why not try to use fynbos as cover crops? This is something that's being trialled now. These are local plants well adapted to the Mediterranean climate of the

Western Cape, and it's a question of finding the right ones to do the required functions of different cover crops.

It's not entirely straightforward. Koopman explains that they don't have access to seed and plant material at scale, and for each project you need a separate permit. There are quite a few people who would be interesting in trialling indigenous vegetation in vineyards if they could get access to it. Johan Reyneke has just started this project, and the late Rob Armstrong was trialling fynbos in his vineyards in Franschhoek. One of the bigger projects has been undertaken by Mullineux in their Roundstone vineyard in the Swartland, where they have been assisted by Rosa Kruger.

I saw these plantings on a recent visit. We saw the young vineyards that they planted in 2015. It was a blank slate when they started, and Rosa is credited for the planning of what to plant. The vineyards are planted with contours of the slope, and it was planted in a way that the wines are able to live without irrigation, at a slightly higher density than normal. The idea is that the roots of the vines can spread, and after one year they are already touching, and then they go down to use the full volume of soil, and the contours are designed so they capture the winter rain. They also broke the vineyard into blocks with the in-between bits planted to fynbos of the same species that grow naturally on the mountain. '90% of it is indigenous to Kasteelberg,' says Chris Mullineux. 'We went to a local nursery and they took cuttings from the mountain, rooted it out with hormones, and then we planted it. This was planted at the same time as the vines. The idea is that this is a home for wasps and ladybirds to nest, and then they come and feed in the vineyard on aphids, mealybugs or anything that is growing there. It helps to keep the natural balance. A lot of the fynbos is aromatic: just as you have garrigue in the south of France or eucalyptus in Australia, fynbos is also aromatic. The idea is that volatile oils will land on the grapes and give a little bit of complexity to the wines.'

But as well as the potential use of these plants as cover crops, more generally wine farms have been making a particular effort to maintain parts of their farms as native vegetation. Often, they will work to clear non-native species from these areas and then set them aside as a sort of plant reserve. This also helps make neighbouring vineyards more sustainable.