



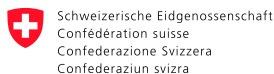
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How to balance forestry and biodiversity conservation

A view across Europe



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Box C 16

'Bluebell-mania' in Hallerbos

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Brief description of the context

The forest named 'Hallerbos' (Forest of Halle) is only a (long) stone's throw away from the Sonian Forest (see B 12 and C28 in this book). Hallerbos is located 15 km south-west of the Sonian Forest, and covers approximately 500 ha. It is located on productive, fertile loamy soils (with some sandy outcrops); the annual increment of the oak (*Quercus robur*, *Q. petraea*) and beech (*Fagus sylvatica*) stands reaches 10–12 m³/ha. It is managed by the same management unit as the Flemish part of the Sonian Forest.

Unlike the Sonian Forest, Hallerbos used to be a private forest, owned by clergy and nobility, including the famous House of Arenberg. They were renowned for their sophisticated and fine-tuned 'coppice with standards' management, producing high quality timber (mainly oak) and large amounts of valuable firewood, a management that was in place for at least 500 years. This dramatically changed during and shortly after World War I.

During WW-I (1914–1918) the forest was confiscated by the German army, and completely stripped of its valuable timber. The Germans installed two mobile sawmills and a narrow-gauge railway track to process and transport timber out of the forest. At the end of the war, only small-sized trees and trees with poor form remained. After the war, the forest was seized by the Belgian state, as its owners were accused of collaboration with the enemy.

In the period 1930–1950, massive replanting of the forest took place. In the beginning, labour and seedling plants were provided by Germany as a form of war reparation. The forest was transformed



Fig. 1. Mystic scene in the Hallerbos forest (Photo: Pierre Kestemont)

to high forest, with even-aged stands of oak and mainly beech on the rich soils, and Scots pine (*Pinus sylvestris*) on sandy outcrops. This has led to the very peculiar situation of a 500 ha even-aged forest with an age-span of merely 20 years.

A lower biodiversity level is associated with such forests: the stands are commonly dense with little structural diversity, and the forest floor is dark. Still, the forest is quite rich in species as it is an ancient woodland (it has never been deforested) and covers a wide range of soil conditions ranging from wet calcareous alluvium to dry acid sandy soils. One particular species performs very well in these conditions, especially in the dense even-aged beech stands on loamy soils: the bluebell.

A particular forest history leading to a particular natural spectacle

Bluebell (*Hyacinthoides non-scripta*, formerly *Endymion non-scriptus* or *Scilla non-scripta*) is a bulbous perennial plant (fig. 1, 2). It is a typical Atlantic species, occurring in Ireland, the UK, western Belgium and France up to northwestern Spain and Portugal. It grows in quite a broad range of soil conditions; however, it does not tolerate poor sandy soils and wet soils. Unlike most other species, bluebells are able to cope with deep shadow conditions. They grow and flower in spring, right before the trees flush. Especially in very dense and summer-dark broadleaved forest stands, this species can outcompete most other ground vegetation species, and form dense patches, with attractive and impressive flowering. In most forests, such light conditions are often patchy and small, and so are the patches of bluebells. In Hallerbos, however, these conditions are present on a large scale, and bluebells are plentiful over vast areas. During the short flowering period that lasts only two weeks (end of April), this leads to spectacular displays. Iconic pictures of the bluebell flowering of Hallerbos have been published far and wide, and have led to a massive peak of visitors and touristic activity during the flowering period. Visitors come from close-by and far away, even from the Far-East, to see this natural spectacle. For the managers of the forest, this phenomenon generates two important challenges: how to orderly organise this peak of visitors, and how to make sure that forest management supports and does not jeopardise the dominance of bluebells.



Fig. 2. Wilde hyacinth (*Hyacinthoides non-scripta*) also called Bluebell in the Sonian Forest (Photo: Kris Vandekerkhove).

Specific aims and measures in forest management and 'crowd control'

Although spectacular and beautiful, it is clear that the current large-scale dominance of bluebell in Hallerbos is not a fully natural situation, but the result of its peculiar management history. In natural Atlantic forests, and in the traditional coppice with standards, Bluebell will always be present, and dominant in the patches with deep shadow: under dense regeneration phases, but never on large areas. It is the peculiar age structure of the Hallerbos that offers the conditions for this massive development. This also means that as the forest stands grow older and gradually open up, competition between bluebell and other ground vegetation will increase, generating a more natural patchy distribution of bluebell. If this is allowed to happen, the forest will lose its specific attraction.



Fig. 3. Bluebell mania in Hallerbos. Photographers compete for the best spots (Photo: Pierre Kestemont).

Therefore, the challenge for the forest managers is to create a more balanced age structure to ensure a long-term continuity and larger-scale stability of the forest, and at the same time produce valuable timber, without losing the bluebells. A strategy was chosen to diversify stands and management, selecting management types that avoid long-time opening of the canopy cover. About 20 % of the forest is set aside as strict reserves. Most of the other broadleaved stands receive a low-intensity selective thinning, but another 10 % is also selected for premature regeneration. A normal rotation period for beech would be about 120 to 140 years, but some of the 70- to 90-year-old stands are now regenerated through shelterwood cuts of 0.5 to 2 ha. The results of these experimental cuts are being closely monitored by the local forest warden, to evaluate its success, both on tree regeneration and the ground flora, in particular on the performance of the bluebells.

Visitor numbers were always high during the bluebell flowering season, but have boomed over the last decade. This is both a gift and a curse for the forest. It gives an extra (even international)

allure to the forest, and forests as a whole. At the same time, uncontrolled access will lead, and in fact have led, to soil and vegetation damage and may generate visitor conflicts and traffic accidents.

In order to control and lead this massive inflow of visitors, a wide range of measures has been put in place. First, public access by car to the forest is forbidden. Several parking lots and the main road that provides access to the central forest parking are temporarily closed to traffic. There are free bus shuttles (paid by the city) from the Halle city centre to the forest. The Forest and Nature Agency also organises a 'bluebell festival' in all its 'bluebell forests' throughout Flanders. Especially in the Hallerbos (the 'main stage') there are guided tours in the forest. There are also activities in the city, bringing both tourism revenues to the city and reducing the visitor pressure on the woodland. A close cooperation between the Agency, the city, police, volunteers, and private initiatives is necessary. A website (<https://www.hallerbos.be>; in Dutch and English), run by the forest managers gives day-to-day updates on the development of the flowering season, so visitors are well informed about the best

time to come. In the forest, a team of 40 to 50 voluntary stewards make sure that visitors stay on the tracks, and are not tempted to enter the stands for the ultimate picture while trampling the vulnerable vegetation. In the most popular areas, several kilometres of black rope is placed as a symbolic 'fence'. Although it can be easily crossed, the rope works as a psychological barrier, and is respected by the large majority of visitors. At the same time, it is a very flexible system that can be quickly deployed (and removed) and does not spoil the view like a real fence would.

Status of implementation

The alternative management has only been in place for about 10 years, and the crowd management has grown in the last five years. It is, therefore, premature to evaluate whether it will be successful in the long run, but developments are closely monitored by the managers. By diversifying the management, sustainable conservation of important stretches of bluebell-dominated forest can be assured. The measures to control and lead public access during the visitor peak were gradually introduced over the last years, and have already proven to be effective. Although the number of visitors has sharply increased, the damage to the vegetation is decreasing and less access violations have been reported. Visitors appear to accept and support the efforts of the managers to provide them with a unique experience while at the same time protecting the forest.