

THE HISTORIC VEGETATION OF FORT BIJ VECHTEN EXCURSION NOVEMBER 25TH, 2009

Nieuwe Hollandse Waterlinie (New Dutch Water Line)

Since the 17th century the Dutch have been working on a series of water based defences to protect the West of the Netherlands, the economic heartland of the country. This defence system, the Hollandse Waterlinie (Dutch Water Line), consisted of dikes, sluices, fortresses and fortified towns on strategic points on the line. The main defensive force of the Hollandse Waterlinie was inundation. The water level in the flooded areas was maintained to a level deep enough to make an advance on foot precarious and shallow enough to rule out effective use of boats. After the defeat of Napoleon in 1815 the newly formed United Kingdom of The Netherlands decided to modernise the old Hollandse Waterlinie. The Nieuwe Hollandse Waterlinie (New Dutch Water Line) was constructed from 1815 to 1886. In this period new fortifications and other defensive structures were build and existing fortifications and structures were modernized.

The development of military vegetation on the Nieuwe Hollandse Waterlinie

There is a long tradition of the military use of trees and shrubs on fortifications. In the 16th, 17th and 18th century German and French fortification experts acknowledged the defensive importance of trees, shrubs and hedges on and around fortifications. During the first construction period of the Nieuwe Hollandse Waterlinie (1815-1826) the Dutch military engineers copied the French ideas on defensive vegetation on fortifications. They used hedges and thorn-bushes to create barriers. In addition they planted trees that could be cut to create obstacles. In this period special military nurseries were established. However, after this initial construction period the attention for military vegetation slightly diminished.

In 1879 the War Office decided to start with the establishment of extensive military vegetation on the fortifications. Elaborate planting schemes were made combined with detailed specifications for the maintenance of the vegetation (replacing dead trees, periodical pruning and shearing hedges, etc.).

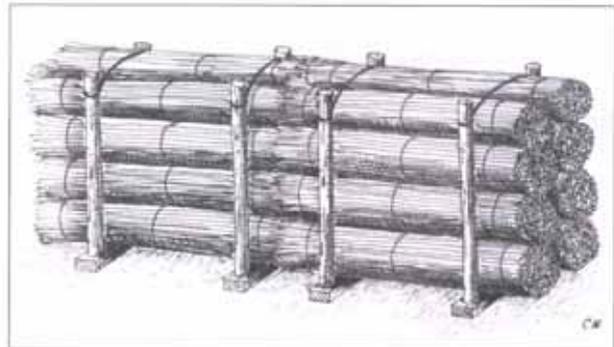


Figure 1 – Fascines

(Illustration copied from: Kamps et al., 2004. Terminologie Verdedigingswerken. Stichting Memmo van Coehoorn)

The vegetation had several purposes. First, hedges of and bushes of hawthorn (*Crataegus monogyna*) and blackthorn (*Prunus spinosa*) were used to create barriers. Also coppice of various tree species including pedunculate oak (*Quercus robur*), common ash (*Fraxinus excelsior*), black alder (*Alnus glutinosa*), sycamore (*Acer pseudoplatanus*) and white willow (*Salix alba*), functioned as a barrier. Because of the dense structure of the vegetation and the extensive rooting system, the coppice was also effective against hostile miners¹ and sappers². Trees (e.g. trees lining the dikes) were used to create abatisses³. Moreover, the branches and stems were used for fascines (figure 1) or the reinforcement of breastworks.

Second, trees and shrubs were used to provide camouflage and cover. For this purpose especially pollard willow was planted. The crowns of pollard willow created enough camouflage to conceal the guns on the fortification whereas the thin, flexible branches did not hinder the defensive fire from these guns. Also tree species like elm (*Ulmus spp.*), poplar (*Populus canescens*, *Populus x Canadensis*, *Populus spp.*) and Norway spruce (*Picea abies*) were used for camouflaging the fortifications in the landscape and providing cover and camouflage for the defenders on the fortifications.

1 Miner: soldier specialised in digging tunnels

2 Sapper: soldier specialised in digging trenches

3 Abatis: A defensive obstacle made by laying felled trees.



Figure 2 – Pollard willow of Fort Nieuwe Steeg. Pollard willow provided camouflage and cover.
 (Picture : Bureau SLA)

The vegetation not only had a defensive purpose. Trees next to guard-houses provided shade for the soldiers standing on guard. Coppice of willow and alder on the moat banks was used to prevent erosion from the water. Coppice and shrubs also reduced the damage to earth structures caused by hostile fire. If a fortification was under siege the trees and shrubs provided firewood.

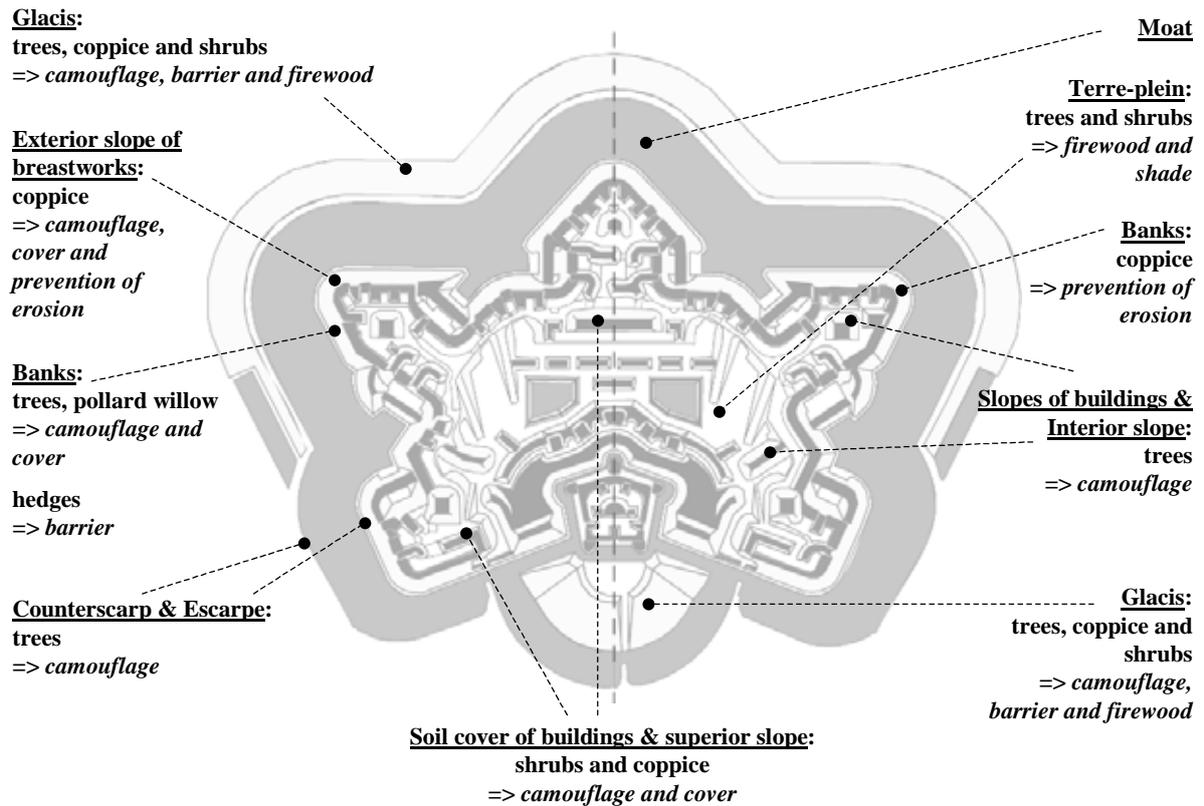


Figure 3 – Schematic overview of types and functions of military vegetation on the fortifications of the Nieuwe Hollandse Waterlinie

Due to changing military tactics and modernization of warfare the defensive function of the military vegetation on the fortifications gradually diminished. After the mobilization in World War I (1914-1918) the maintenance of the military vegetation was minimized. After World War II (1940-1945) the Nieuwe Hollandse Waterlinie and its vegetation lost its military function.

The military vegetation of Fort bij Vechten

Fort bij Vechten is a fortification of 17 ha. It was built between 1867 and 1870. Initially the fortress was covered with grass sods. Spots that were not suitable for applying sods were sown with ryegrass (*Lolium spp.*). In 1879 the War Office gave orders to establish defensive vegetation on the fortress. In 1880 specifications were made to plant 15 sycamore trees, 15 common horse chestnuts (*Aesculus hippocastanum*), 15 red oaks (*Quercus rubra*) and 15 lime trees (*Tilia spp.*) on the inside of the fortress (Terre-plein). On the banks 400 white willows and 8000 thorn-bushes for hedges were planted. The specifications also included the planting of 13.000 sycamore trees for coppicing and 50 elm trees on the glacis. The access road was planted with 250 oaks. In the next years 1892 and 1899 several specifications were made for the maintenance of this vegetation. These specifications show that in 1899 the fortress contained 2.2 hectares of coppice, 1250 meters of hedges, 13.114 metres of coppice on banks and slopes, 387 old trees and 165 young trees. An inventory made in 1909, showed that the defensive vegetation was still intact. However, aerial photographs taken in 1926 show that part of the defensive vegetation has been cleared, this was presumably done during the mobilization in World War I.

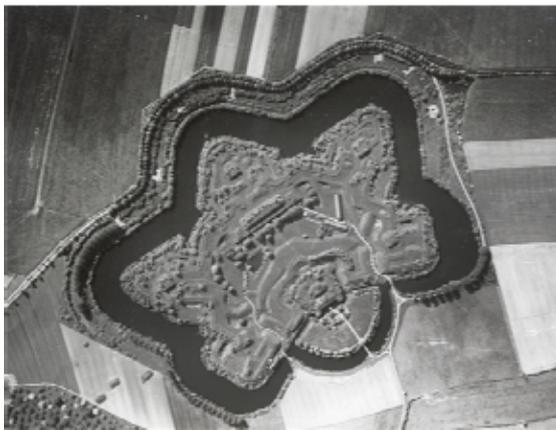


Figure 4 – Aerial photographs of Fort bij Vechten in 1926 (left) and 1997 (right)

(Pictures: Nederlands Instituut voor Militaire Historie (left), Provincie Utrecht (right))

The present vegetation of Fort bij Vechten

At present, Fort bij Vechten is covered with trees (forest), bushes, grasslands and other herbaceous vegetation. The fortress is mainly used for recreational purposes. Overall the vegetation does not have significantly high ecological values. However, given the results achieved on similar fortresses, the presence of some important indicator species shows that the vegetation has a potential to achieve higher ecological values. An inventory that was carried out in 2008, showed that the current vegetation still contains many elements of the original military vegetation, e.g. coppice stools and trees on the access road.

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