



## Wild horses, wisents and aurochs maintain the wide coastal heaths

Wild Horses, Wisents and Aurochs:

### Large Herbivores for Maintenance and Conservation of Coastal Heaths

A Project of the German Federal State of Lower Saxony

Project Partner:  
Bundesanstalt für Immobilienaufgaben  
(Institute for Federal Real Estate),  
Federal Forests division,  
Central Office Wense



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Niedersachsen



#### Welcome!

This information brochure will be your guide on an interesting tour through the "Cuxhavener Küstenheiden" nature reserve near Cuxhaven. To protect and sustain the abundance of rare animal and plant species while enjoying nature, please observe the following do's and don'ts:

#### Always play it safe!

To avoid stepping on sensitive plants and disturbing animals like the European adder, visitors are instructed to stay on the surfaced or marked cycling and hiking paths.

#### Dogs only on a leash!

In the LIFE project area, where cattle and horses graze the land and many horse riders can be seen, dogs must always be on a leash, all year round.

#### Cattle and horses are provided for.

Heck cattle and koniks are robust races, and the animals like living outdoors in every season, just like the wisents. A keeper checks on them daily. They can find sufficient and varied sustenance in their large pastures. During long periods of snow or frost they are also fed hay. Therefore please refrain from feeding Heck cattle, koniks and wisents!

#### Horse-riding only with a horse vignette!

Horse-riding is only permitted on specially marked trails and tracks. The necessary horse vignette and a map of the riding trails are available at the local tourist information offices.

#### No camping, no fires!

#### Information

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The coastal heaths Cuxhavener Küstenheiden are a unique natural heritage area on the German mainland, which was awarded "Natura 2000" status. However, the wide open countryside just a few kilometres inland from the North Sea cliff has reached a turning point. Until 2003 the area between the villages of Altenwalde and Berensch was used as a military training ground and maintained its heathland character. Now koniks, wisents and Heck cattle shall prevent 340ha of heath from turning into shrubland. The animals are kept within secure fences and help free heath habitats permanently, cost efficiently and naturally from unwanted immigrants like the black cherry tree. For the preservation and near-natural development of 580ha of coastal heath, including 160ha of forest, the federal state of Lower Saxony is providing a total of EUR930,000 up until 2009; the EU's LIFE Nature program funds 50 percent of this amount. The Institute for federal real estate as the previous owner of the area also provides financial support for this project.

As of 2009, the non-profit "DBU Naturerbe GmbH" is the new owner of nearly 1,300ha of nationally

significant area, i.e. National Natural Heritage, which also includes the LIFE project area. The DBU preserves the area as a long-term nature reserve. Some important preliminary work for the preservation of this unique landscape has already been completed: in 2004, 954ha of the coastal heaths became part of Natura 2000, the European network of conservation areas. The presence of ten different types of habitats protected by the EU Habitats Directive, among them the crowberry heath, which is unique in the form found here, as well as rare species like the large white-faced darter (a dragonfly), the moor frog and the sand lizard have convinced the EU experts. In areas under the Habitats Directive environmental conditions must not deteriorate. Since 2004, 892ha of the coastal heaths have been a nature reserve, in which over 230 endangered plant and animal species are found. The protected status of the coastal heaths does not keep humans out. On the contrary: hiking, cycling and horse riding trails, an observation tower and information panels are provided to enhance the visitor experience.

### Robust landscape managers with hooves and horns

"Very wilde and ungainly" is how the naturalist Conrad Gesner described the wisent in the 16th century. In the LIFE project area of Cuxhavener Küstenheiden this largest and heaviest European terrestrial mammal can be admired. Together with Heck cattle and koniks ("konik" is Polish for "pony" or "little horse"), the wisents help to maintain the open heath and grassland, thus preserving its typical flora and fauna. The worldwide population of wisents (Bison bonasus) has grown to over 3,500. After the last of these animals living in the wild in Poland (1921) and in the Caucasus Mountains (around 1927) were killed by poachers, the wisents were successfully bred again from a dozen captive animals. Today the largest population that was returned to the wild lives in the forest of Bialowiecza in Poland and consists of 450 animals. The 5 wisents of the coastal heaths near Cuxhaven live under the care of humans in an enclosure



of 45 hectares. As consumers of grass and roughage, their job is to keep the black cherry tree at bay. These trees were imported from America, spread quickly and were planted for protection against fire and as visual cover in the previous century, when the LIFE project area served as a military training ground. The areas that are needed as habitats by the endangered animal and plant species of the heath are also kept open by the weight and grazing of the wisents. At the same time, the LIFE Nature project helps to preserve the wisents, who are an endangered species as well. Apart from the wisents, 50 heads of Heck cattle and 20 koniks are

Left from above:  
Konik, Heck cattle, wisent



Offspring of Heck cattle (above) and konik (front picture) were born in the coastal heaths of Cuxhaven in the first year.

on duty as nature conservationists in three alternating large enclosures on a total of 300 hectares. The similarity between Heck cattle and aurochs is no coincidence. The wild ancestor of many domestic cattle races suffered worldwide extinction as early as the 17th century. But in the 1920's, the brothers and zoo directors Lutz and Heinz Heck had a plan of breeding a robust cattle race that resembled the aurochs. Their so-called "breeding back" was successful. However, the Heck cattle are not nearly as large as an aurochs. The distinctive winter hardiness of the Heck cattle makes them ideally suited to living outdoors all year round. They can bend down tree branches with their horns and they are very adept at cropping shrubs. The koniks originate from Eastern Europe and are related to the tarpan, the extinct European wild horse. This placid race is characterised by an enormous hardiness and is also very well suited to living outdoors throughout the year. The herds consist of males and females of different ages, which allows the animals a largely natural behaviour in the large enclosures with their varied food and shelter options. The low number of animals in such a large space ensures that the grazing does not damage the edges of the forest or the heath. They only receive additional fodder in extremely adverse weather conditions. Wells were drilled specially to provide them with watering places to drink at. 16 kilometres of electric fencing around the enclosures make sure that animals and visitors don't get too close to each other. (Livestock figures as of spring 2009)

### After the destruction of the forests expansive heath prevails

After years of disagreement biologists nowadays concur: the heath areas around Cuxhaven only developed because man cultivated the coastal sandy heathland for centuries. Heathland is only found where forests would naturally grow. During the bronze age, the coastal ridge of Hohe Lieth was covered with beech and oak trees. The only exception was where salty sea winds drove the sand over the cliff directly above the sea. There the small, carpet-like crowberry shrubs had nothing to fear from larger shrubs and trees. Everywhere else on the Hohe Lieth ridge, people had been ruthlessly exploiting the forests since the Middle Ages, so that by around 1790 the area was practically devoid of forest and covered in heath.



Above: Heather  
Below: Sand lizard

Sheep and other livestock grazed mainly on the commons that were used by all villagers, thereby preventing new forests from growing. The regular grazing also supported the regeneration and rejuvenation of heather and erica. A highly adapted flora and fauna, consisting of heath and lean turf, grew on the sandy, oligotrophic soil. 400 butterfly species, almost 100 species of ground beetles and 160 species of bees and wasps have been found in the coastal heaths. Endangered bird species like the woodlark and the nightjar are present, as well as the heat-loving sand lizard and the increasingly rare European adder. Alongside sheep's fescue and grey hair-grass, common centaury and arnica can be seen flowering on the sandy lean turf. All of these are species that are nowadays endangered in many places.



New small pond in the coastal heaths

### Ponds – oases in the sand of the heath

There are very few ponds in the sandy soils of the coastal heaths, but they are very special. They are oligotrophic, not utilised by man, often dry out in summer because they are so shallow, and no fish can live in them. But in spite of all this, these ponds are full of life. After living in the ponds as larvae, dragonflies – multi-coloured hunters with glittering wings – keep watch in the rushes. Buck beans flower white in the sun, and in spring the blue face of the moor frog stares out of the water. Other types of amphibians like the common toad and the common newt also depend on the ponds.

To secure the future for this highly specialised fauna of small bodies of water, 5 new ponds were created in the LIFE project area in 2006, and 2 more were restored as habitats. By spring 2007 the first amphibians had taken possession of their new spawning grounds. Up until 2003 small ponds had developed through the army's use of their Altenwalde training ground, for example due to explosions or use of tanks. Grazing animals are prevented from accessing especially sensitive ponds. At other ponds their hooves create new germinating grounds for sundew and small rushes.

Buck bean and moor frog, both rare species, are found in the ponds of the coastal heaths.



The imported black cherry tree threatens the open heath with its strong growth (the small picture shows its fruit).

After the German army withdrew from the Altenwalde military training ground in 2003, grazing was again employed in nature conservation as a proven means of maintaining the heath. For military purposes, the army had mowed the heath and kept it open by removing small trees and shrubs. The removal of the young shoots – mostly pioneer species like birches and pines – and of invading species like the black cherry tree is carried out mechanically to prevent shrub growth. Dense populations of the black cherry tree existed, especially in the areas of the coastal heaths close to forests, overgrowing the valuable heath habitats. The mechanical removal of these trees and shrubs had high priority within the framework of the LIFE project. In the open heath this work was at first limited to the targeted removal of older trees, which had grown out of reach of the mouths and horns of the koniks, wisents and Heck cattle. Nature conservationists are currently less worried about the dense populations of crowberries, which will remain stable for years to come because trees do not prevail so easily where crowberries grow.



The aim of nature conservation is to maintain the impressive extent of the heath.

### Forest reconstruction with foresight



Fallen trees and deadwood are essential for the survival of fauna and fungi.

A forest of beech and oak trees would cover the coastal heaths if man had not already begun to use the trees for building and or firewood before the birth of Christ. With almost 160ha of forest, nearly one quarter of the approximately 580ha of the LIFE project area is covered in trees. The

long-term aim of the forest reconstruction is to replace the monotonous "foreign trees", for example the black pine, Japanese larch and silver spruce, which offer low resistance against storms, pests and fire, with indigenous beech and oak forests.

In some areas, for instance near the rampart of the Burgwall, these efforts have already borne fruit. In 2007/2008, the forest rangers had over 50,000 indigenous trees planted amongst the thinned out larches and pines. Hazelnuts, alder buckthorns, blackberries and sloes provide some variety to the forest edges. The different "floors" of the forest – high and low trees, shrubs, herbs and moss – each



Thinning for greater biodiversity

offer special ecological niches for the forest fauna, and an area of about 50ha will maintain a special focus on this. Butterfly caterpillars and weevils will soon utilise the leaves of young deciduous trees, and billions of tiny ground animals will process the fallen leaves. However, the real inhabitants of dead wood, on which, among others, the black woodpecker lives, will only really thrive in a few decades time. Gnarled shapes of trees are characteristic of the forests known as "Krattdwälder" in the coastal heaths. These forests have developed since the Middle Ages, when the country population began to cut back the newly sprouting oak trees every 40-60 years to obtain wood for building or heating.

### In the bog – predator plants and blue frogmen

Carnivorous plants and amorous blue moor frogs: in the small bogs of the coastal heaths of Cuxhaven, like the Holter Steertmoor, strange and wonderful things can be seen. For all bogs, water is the elixir of life. Although made up of fen peat, the Holter Steertmoor is a transition mire, like other small bogs in the area. Rainfall provides the



With a size of some 6 hectares, bogs account for 1 percent of the LIFE project area.

main water supply, and the moors can be nearly as sour as lemon juice. Bog plants are adapted to this and especially to the lack of nutrients. Three endangered species of sundew are found here, who get the nutrients they cannot find in the soil by acting as a predator: insects stick to their leaves and the plants digest the prey they have lured into their trap. The pretty yellow bog asphodel is found in swampy bog and heath areas that are dangerous for livestock, giving the plant its German name: break-a-leg. Another highly endangered plant of the coastal heaths is the marsh gentian, a medicinal plant used to cure pulmonary diseases. From mid May to the end of July, white faced darters (dragonflies) can be seen hovering over the bog ponds. The large white-faced darter is an endangered indicator species of the Natura 2000 area. The male darter is distinguished by a lemon-coloured spot at the rear end of its body. The moorlands of Cuxhaven are threatened by draining, the encroachment of shrubs and by nutrients, which get into the water through air pollution.



From above: Large white-faced darter (dragonfly), marsh gentian and round-leaved sundew



Traces of military use: the former military training ground of Altenwalde (with the Burgwall on the left) served as a shooting range for the tank forces.

### For 100 years the army shaped the open landscape

Open heath areas, shrubs and coniferous forests – the landscape we see today in the coastal heath area was shaped to a large extent by military and forestry usage over the last 100 years. The forests were destroyed over the centuries before the army took over.

#### Recent History – Overview

app.1890	The coastal heaths become a naval training ground.
1913/14	Altenwalde naval shooting range established. Reforestation with black pines (barracks).
1935-40	Reforestation with black pines (Oxstedt depot), building of ammunition bunkers, creation of anti-aircraft positions and searchlight towers, target practice area for V 1 rockets.
1955	German army stations tank forces.
1951-57	Reforestation with black pines (Berenscher Heide), part usage of coastal heaths for tillage until the 1960s.
from 1968	Reforestation along the Burgwall and in open terrain with Japanese larch, silver spruce, black alder. Planting of black cherry trees.
from 1970	Planting of indigenous deciduous trees in the conifer forest.
1972	Land swaps between Lower Saxony and the German federal authorities establish today's property boundaries.
2003	The army abandons the military training ground, end of terrain maintenance by the army.
2004	The coastal heaths of Cuxhaven become a nature reserve and part of the European network Natura 2000.
2005-09	LIFE Nature Project: Use of Koniks, wisents and Heck cattle in nature conservation
2009	The coastal heaths of Cuxhaven are secured as a natural heritage area by DBU Naturerbe GmbH.

# Profile of the LIFE project area "Cuxhavener Küstenheiden"

**Location:** Between the villages of Altenwalde, Berensch, Holte-Spangen and Oxstedt on the North Sea coast (administrative district of Cuxhaven, Lower Saxony).

**Size:** 580ha, of which 160ha are forests.

**Owner:** Institute for Federal Real Estate until 2009, since then DBU Naturerbe GmbH.

**Usage:** 1954-2003 military training ground, "terrain maintenance" by the army. Military exercise area from the beginning of the 20th century. Part usage for tillage ("Rehwiese" until the 1960s). Forest destruction since medieval times, plaggren cultivation and grazing of heaths. Usage of wood from Kratt forests. Reforestation of the boundaries and near the Burgwall in the 20th century. Tourism and nature conservation since 2004. Many archaeological monuments.

**Nature and landscape:** Mosaic of ca. 70 biotope types, including heath, bogs (e.g. Holter Steertmoor), lean turf, Kratt forests, coniferous forests and ponds on the ridge of Hohe Lieth (up to 30 metres a.s.l.). Open landscape is threatened by shrub growth (e.g. black cherry trees).

**Fauna:** 150 endangered animal species. Ca. 70 breeding bird species, e.g. skylark, woodlark, whinchat, stonechat, nightjar, red-backed shrike. Migrant birds: great grey shrike, whimbrel, gull-billed tern, bee-eater. Other vertebrates: moor frog, sand lizard, European adder. Approximately 400 butterfly, 100 beetle, 25 dragonfly, and 160 bee and wasp species. Large white-faced darter (dragonfly) as a Habitats Directive indicator species.

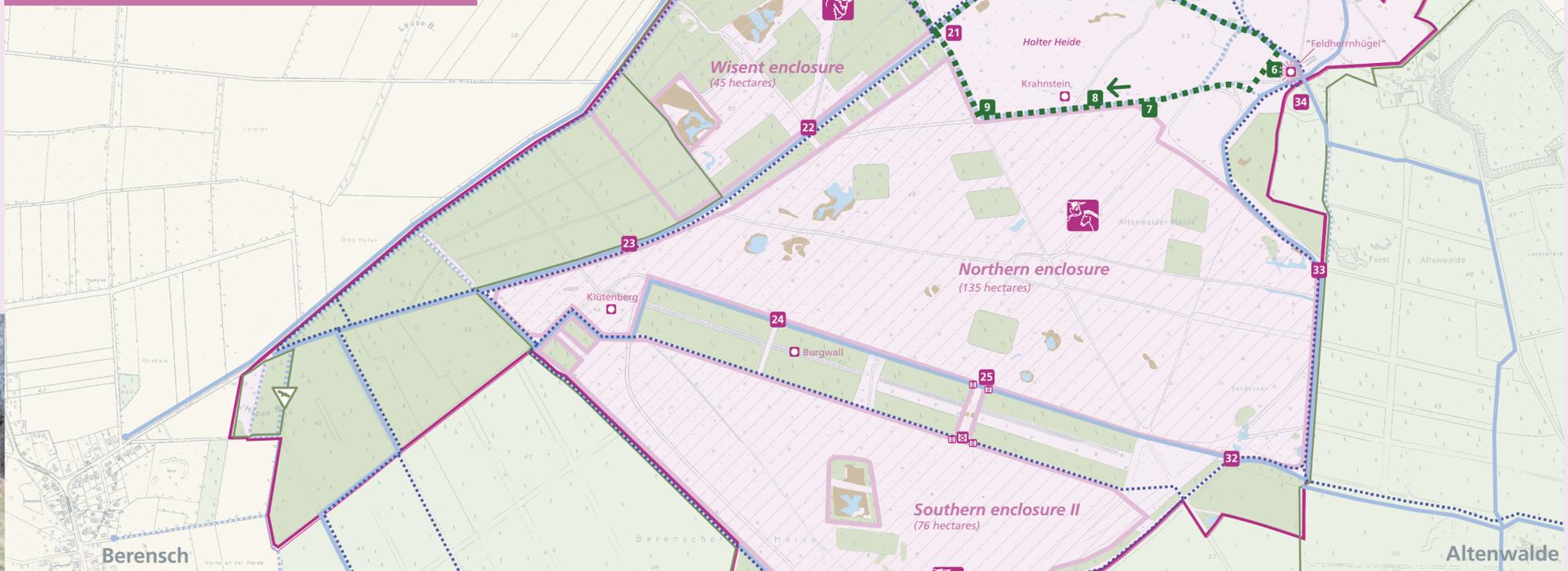
**Flora:** Approximately 400 species of ferns and flowering plants, 80 of these endangered. Special characteristics: Crowberries (largest population on the mainland near the North Sea), sundew, English gorse, marsh gentian.

**Nature conservation:** Part of the Natura 2000 area according to the Habitats Directive of the EU (total size 954 ha, since 2004) and part of the nature conservation area "Cuxhavener Küstenheiden" (total size 892ha, since 2004). EU LIFE Nature project "Large Herbivores for Maintenance and Conservation of Coastal Heaths" (2005-2009).



The coastal heaths of Cuxhaven, which extend from the Wadden Sea over vast parts of the coastal sandy geest, are a landscape formed by man. On the ridge of Hohe Lieth, beeches rustled in the wind until the Middle Ages, whereas maps from the 18th century show nothing but heath. Man had cleared the forest and used the wood for heating and for the building of ships and houses. But the heath areas created by this, which were used partly as a military training ground until 2003, are something special today: a wide, open landscape covered with crowberries and other small shrubs, which is not found to a similar extent anywhere else on the German coasts. It is a haven for rare plants and animals like arnica and nightjar. The LIFE project area, which is shown on the map, encompasses approximately half of the entire coastal heathland in the Cuxhaven area. Grazing animals like koniks, Heck cattle and wisents in large enclosures prevent the heath from turning again into forest. For man this means that we can continue to enjoy a wonderful landscape, in which we can relax and experience a unique nature reserve at first hand.

## LIFE project area in the coastal heaths of Cuxhaven



Wisent-Gol

**Legend**

- Boundary of the LIFE project area
- Boundary of the nature reserve "Cuxhavener Küstenheiden"
- Enclosures for large grazers
- Heath, lean turf, grass and herbaceous vegetation
- Forest
- Forest outside the LIFE project area
- Bogs and marshes
- Bodies of water, some drying out in warm weather
- Cycling tracks and hiking trails
- Hiking trails
- Horse riding trails
- Nature trail "Holter Heide"/trail station
- Car park
- Wilhelm Lemke observation tower
- Information panels
- Pedestrian gate
- Orientation point
- Gate between enclosures
- Vantage point
- Wisent enclosure/ konik and Heck cattle enclosure

200m 400m 600m 800m

### How to get to the LIFE project area



### LIFE project area near Cuxhaven



## Insight into the coastal heaths

22 information panels (cf. numbers on the map) provide interesting details of the LIFE project area "Cuxhavener Küstenheiden". These panels supplement the information offered by the town of Cuxhaven on information panels 1-15, which are an equally interesting presentation of those parts of the nature reserve that are located outside the project area.

- 16 Experience nature conservation:** The LIFE nature project area "Cuxhavener Küstenheiden"
- 17 Landscape formed by man:** first forest, then heath
- 18 Life with light and shadow:** near-natural deciduous forests
- 19 Gnarled shapes:** Kratt forests worth protecting
- 20 Carnivorous plants and blue frogs:** survival in the bog
- 22 Landscape managers with hooves and horns:** Heck cattle and koniks
- 22 Chin-bearded bullheads:** wisents provide biodiversity
- 23 The green invasion:** the case of the black cherry tree
- 24 Forest with foresight:** the near-natural deciduous forest
- 25 Rampart in the heath:** Burgwall over 400 years old
- 26 Good old cowpat:** busy life in the dung
- 27 Observation tower:** selected topics (2 panels)
- 28 Beetles in tank tracks:** army maintained biotope diversity
- 29 Ruined witnesses of ancient times:** protection for the last passage graves
- 30 Savings strategies:** sand plants know how to survive
- 31 Singer with an overview:** LIFE project helps birds in the heath
- 32 Life as a seasonal business:** adaptation artists in the pond
- 33 Looking for a place in the sun:** animal species in the open sand
- 34 "Feldherrnhügel":** selected topics (2 panels)
- 35 In the stalk jungle:** busy life on meadows and pastures

## The nature trail "Holter Heide"

- consists of the following stations:
- 1 Welcome to Holter Heide:** where animals shape the territory
  - 2 The three types of heather:** their similarities, their differences
  - 3 A natural thing:** the landscape of the past
  - 4 Pasture, bedding and honey:** beginning and end of traditional heath management
  - 5 A lot of wood:** reforestation in the heath
  - 6 No-go area:** where tanks created and maintained habitats
  - 7 Thorns, poison and oil:** how plants protect themselves from browsing animals
  - 8 Construction work by the wayside:** curriculum vitae of a digger wasp
  - 9 On the sunny side:** the heath as the sand lizard's habitat

## Orientation points

The wide coastal heaths of Cuxhaven provide some orientation points for hikers and horse riders.

In the south of the coastal heaths the mound of Großer Helmersberg has a height of 22.5 metres above sea level. This is one of 183 documented archaeological sites, of which today only two dozen can be distinguished as burial mounds. The mound of Kleiner Helmersberg is located in the very south of the LIFE project area, in the north the Krahnstein is found, and in the west the Klütenberg.

The Burgwall with its length of 1.5km is at least 400 years old and may have served as a rampart, which guided the traffic to the castle of Altenwalde.

From the Feldherrnhügel with its height of approximately 30 metres above sea level a wonderful view over the heaths of Holte and Altenwalde can be enjoyed. This hill, under which a bunker is buried, was used by the army as an observation point during military exercises.

The observation tower was built for the visitors of the coastal heaths, using funds from the LIFE project. The observation platform is 8 metres above the ground; from here visitors have a good view of the heaths of Berensch and Oxstedt with the mound of Großer Helmersberg to the south-west. To the north, the Burgwall can be seen in the distance.