



*Cavalli di razza Konik nelle golene del fiume Reno, nei Paesi Bassi (foto Fabio Casale)*

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## HABITAT MANAGEMENT AND REWILDING OF GRASSLANDS AND WETLANDS ALONG RIVER RHINE IN THE NETHERLANDS

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### Abstract

*Klompenwaard is a nature reserve located inside the Gelderse Poort area, where the Rhine river enter The Netherlands. This is a region where several rewilding projects were realized and Klompenwaard is one of them. The site is situated at the junction of rivers Rhine and Waal. The area shifted from being a pasture for domestic cattle to an area with a mosaic of grasslands, shrublands and wetlands, in which were introduced “rough” species of horses (Konik) and cattle (Galloway). The project started in 1998 and in about 15 years 13 new breeding bird species were recorded and 10 breeding species had a strong increase in their breeding populations, especially species related to shrublands and to grasslands with tall and unmanaged herbs.*

### Riassunto

*Gestione degli habitat e rewilding di praterie e zone umide lungo il fiume Reno, nei Paesi Bassi.*

La riserva naturale di Klompenwaard è situata nell'area vasta denominata “Gelderse Poort”, dove il fiume Reno entra nei Paesi Bassi. Si tratta di una regione ricca di numerosi progetti di *rewilding* e Klompenwaard è uno di essi. Il sito è localizzato alla confluenza tra i fiumi Reno e Wall. L'area era all'inizio un pascolo per bovini domestici ed è poi diventata un mosaico di vari habitat arbustivi, prativi e acquatici, nel quale sono state introdotte specie “ruspanti” di cavallo (Konik) e di bovino (Galloway), in grado di vivere nel sito per tutto l'arco dell'anno. Il progetto è iniziato nel 1998 e in circa 15 anni 13 nuove specie di uccelli nidificanti sono state rilevate e 10 specie nidificanti hanno visto un forte incremento della popolazione riproduttiva, in particolare per quanto concerne specie legate ad ambienti arbustivi e ad ambienti prativi con erbe alte e non gestite.

## Living rivers

In the eighties and nineties of the last century, a new vision about nature management was launched in The Netherlands. Beside nature conservation, the focus was on the resilience of natural processes. The big floods of 1993 and 1995 actually changed the attitude about water management in The Netherlands. As a result, the national policy moved from strengthening the dikes into giving space to the rivers. The State purchased agricultural land and in collaboration with mining companies, floodplains were lowered and channels and water bodies were dig. To make this possible, the destination of the agricultural land changed into flood protection, nature conservation and recreation.

## Changes in the land use

In the context of the “Land Development Act” that was approved in those years by the Dutch government, a land development project has been started in 1995 in the Geldersee Port area, where the Rhine enters in the Netherlands, at the confluence between the rivers Rhine and Waal. This project was activated in this area, with the aim to improve the areas for farming and for nature conservation. As a first result of this strategy, less suitable floodplains for farming were purchased by the State and



Figure 1 - Location of Klompenwaard in The Netherlands.



Figure 2 - Map of Klompenwaard (the red line indicates the border of the area).



Figure 3 - Herds of Konik horses were released in the area of Klompenwaard to restore the process of natural grazing (photo Wildernisfoto).

destinated to nature conservation, while not flooding polders were improved for agricultural use. In the state-owned floodplains agricultural land changed into many rewilding projects.

Klompewaard area (*figures 1 and 2*) is one of the areas inside Geldersee Port where restoration processes were activated, starting in 1998, through:

1. Re-activation of the natural water-dynamics by digging a side channel and new wetlands;
2. Introduction of free roaming herds of Konik horses (*figure 3*) and Galloway cattle.

### Natural grazing

Although the wild European species of horse (Tarpan) and cattle (Auroch) are extinct, part of their genes still exists in the cattle and horses that were released in this area. Natural grazing means that raised animals belonging to “rough” and old races are released in nature. In particular, in the Klompewaard there are four conditions for natural grazing:

- all fences inside the area were removed;
- social herds: in each herd there is a mixture of age and sexes of the animals;
- all year outside;
- no supplemental feeding. The management of herd’s individuals prevents the animals for starvation.

### Changes in the landscape

As a result of the management strategies described above, the landscape of Klompewaard is changed radically. Before 1998 it was an uniform open grassland area, grazed by domesticated cattle (*figure 4*). Twenty years later the area has a continuously changing and colorful landscape (*figures 5a and 5b*).



Figure 4 - The Klompewaard area before the rewilding project was used as a pasture for raised cattle (photo Hans Bisschop).



Figures 5a e 5b - Changes in the landscape captured in two aerial pictures (above: October 1999, below: June 2018) (photo Wildernisfoto).

Table 1 - The top ten breeding bird species that showed a greater increase at Klompenwaard after the rewilding project.

Common name	Scientific name	N. territories 1995-1999	N. territories 2011-2015	Increase (n. new territories)
Marsh Warbler	<i>Acrocephalus palustris</i>	14	100	86
Common Whitethroat	<i>Sylvia communis</i>	14	79	65
Linnet	<i>Linaria cannabina</i>	9	24	15
Common Stonechat	<i>Saxicola torquata</i>	0	13	13
Greylag Goose	<i>Anser anser</i>	2	14	12
Grasshopper Warbler	<i>Locustella naevia</i>	1	12	11
Bluethroat	<i>Luscinia svecica</i>	0	8	8
Reed Bunting	<i>Emberiza schoeniclus</i>	8	15	7
Eurasian Goldfinch	<i>Carduelis carduelis</i>	4	10	6
Gadwall	<i>Anas strepera</i>	1	6	5

## The top ten breeding bird species in Klompenwaard

Since the start of the project (1998) 13 new species of breeding birds have been recorded in the area and for other 13 species the number of breeding pairs increased. In *Table 1* are listed the ten species that showed the most significant increase after the rewilding project. The most important increase was recorded for Marsh Warbler (*Acrocephalus palustris*) (*figure 6*), from 14 territories in 1999 to 100 in 2013, followed by the Common Whitethroat (*Sylvia communis*) and the Linnet (*Carduelis cannabina*). Two species were not present in 1999 and they are nowadays rather widespread: the Stonechat (*Saxicola torquata*), with max. 13 territories in 2011-2015, and the Bluethroat (*Luscinia svecica*), a species of community interest according to the EU Birds Directive, with max. 8 territories in 2011-2015.

### Breeding birds and habitats

When the increased breeding bird species are classified per habitat, it becomes clear that the increase of scrubs and tall herbs after the rewilding project was the most favorable for some breeding birds. Eight of the top ten species (all the Passerines) of increased breeding birds are characteristic of this vegetation. The other two species are breeding in wetlands (Greylag Goose and Gadwal). Apart from these ten species, the site was colonized by birds related to forest habitats like Willow Tit (*Poecile montanus*), Short-toed Treecreeper (*Certhia brachydactyla*) and Great Spotted Woodpecker (*Dendrocopos major*).

### Conclusions

After more than 20 years from the beginning of the rewilding project in the once cattle pasture of Klompenwaard, the area is now a mosaic of different habitats. The most favourable habitats for breeding birds are, so far, the areas dominated by scrubs and tall herbs. Additionally, the newly emerged landscape became very attractive for visitors. It was also reported that breeding birds are less vulnerable to human disturbance if the number of visitors is not too elevated and with a behaviour that is respectful towards nature and wildlife.

### Acknowledgments

I am grateful to Olaf van Hoorn for providing the data about the bird counts.



Figure 6 - The Marsh Warbler has seen a strong increase in the breeding population in Klompenwaard area (photo Wildernisfoto).



Figures 7a e 7b - Habitat changes in the rewilding area of Klompenwaard (above: 1999, below: 2014) (photo Wildernisfoto).