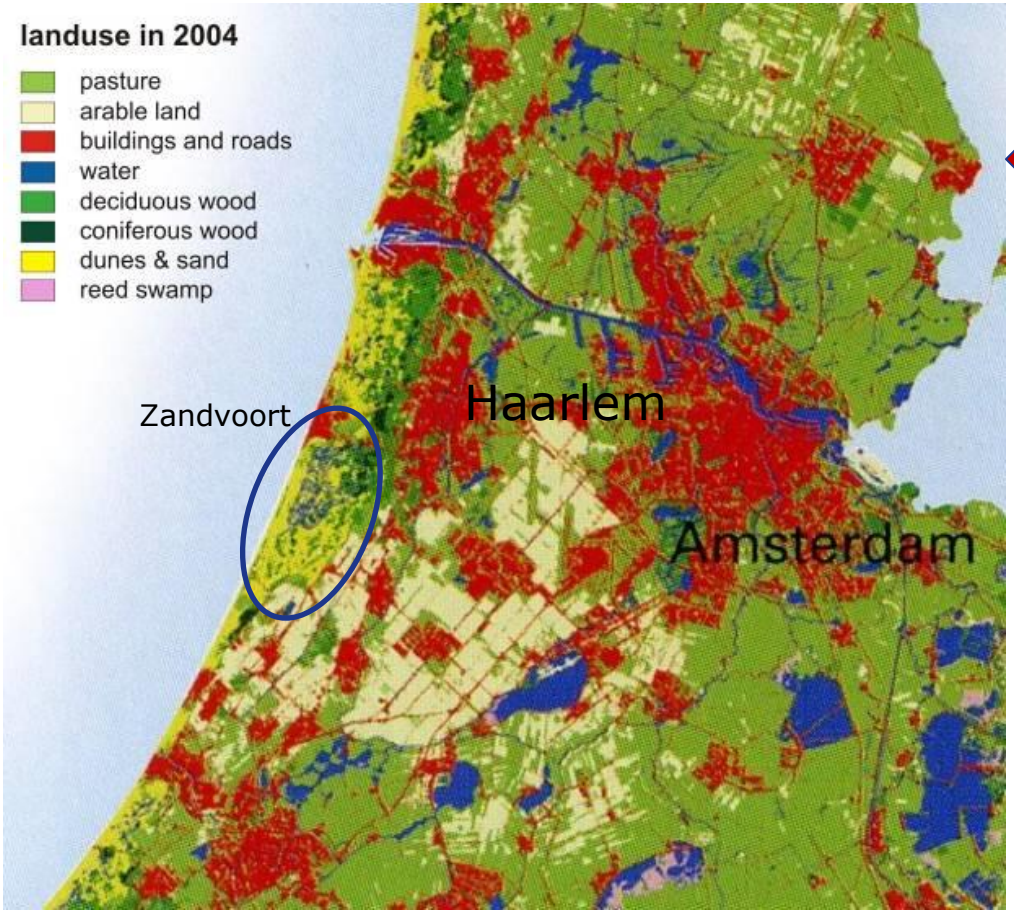
# **Amsterdam** (water supply) **Dunes** herbivores

**Leo van Breukelen**

waternet

# Location

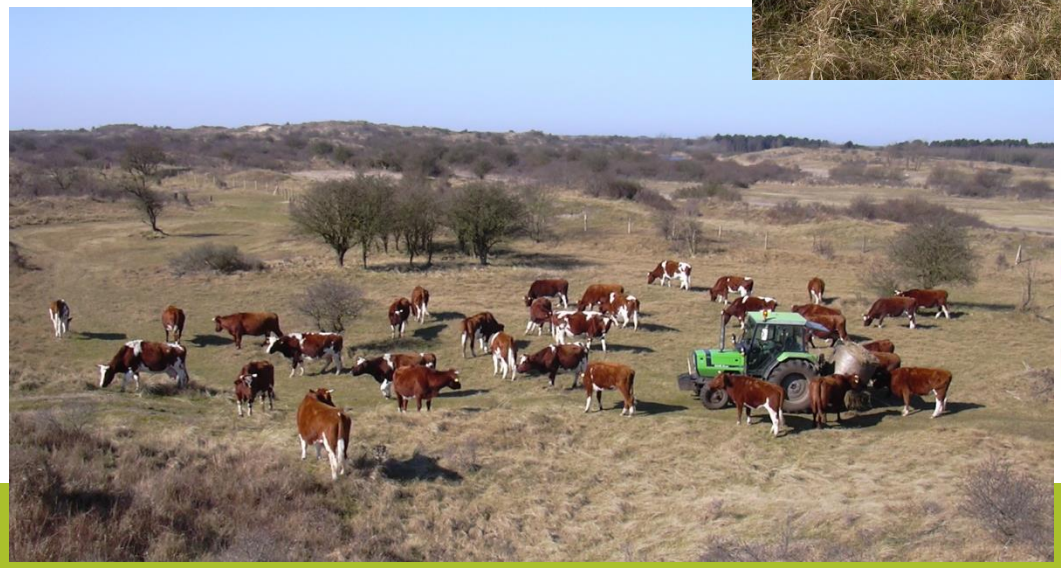

landuse in 2004
pasture
arable land
buildings and roads
water
deciduous wood
coniferous wood
dunes & sand
reed swamp
Zandvoort
Haarlem
Amsterdam


NORTH SEA
MER DU NORD
FRIESLAND
GRONINGEN
LEEUWARDEN
ASSEN
DRENTHE
Den Helder
IJsselmeer
NOORD-HOLLAND
HAARLEM
AMSTERDAM
LELYSTAD
FLEVOLAND
ZWOLLE
OVERIJSSEL
Almelo
Deventer
Hengelo
Enschede
Apeldoorn
Amersfoort
GELDERLAND
's-GRAVENHAGE
UTRECHT
Zeist
Delft
Gouda
ZUID-HOLLAND
ARNHEM
Rotterdam
Dordrecht
GERMANY - ALLEMAGNE
ZEELAND
's-HERTOGENBOSCH
Breda
Tilburg
NOORD-BRABANT
MIDDELBURG
Eindhoven
LIMBURG
Oostende
Antwerpen
Sint-Niklaas
Gent
BELGIUM - BELGIQUE
Mechelen
Aalst
BRUXELLES
Leuven
Hasselt
MAASTRICHT
Aachen
Düren
BONN
Duisburg
Wuppertal
Leverkusen

# (over) Grazing by Fallow deer

# Grazing as management tool

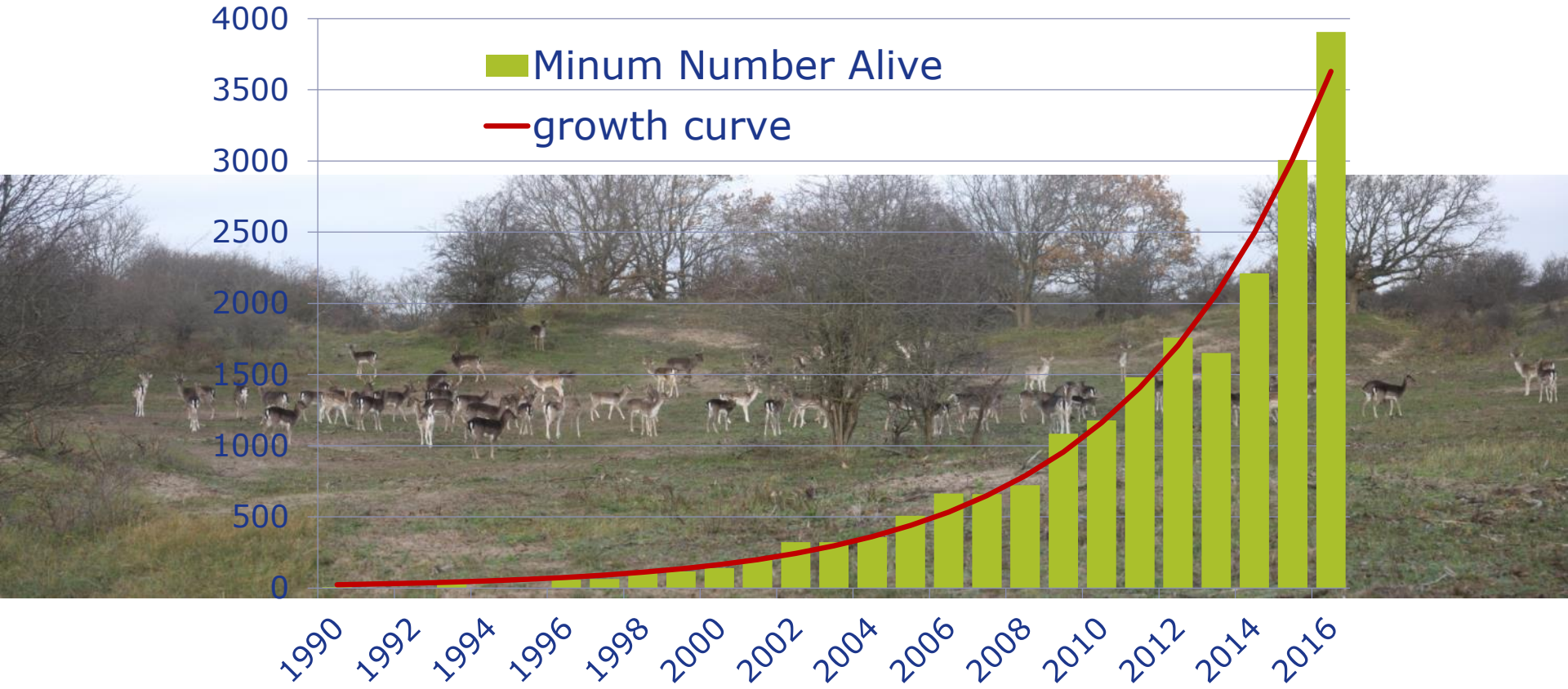
Grazing as a management tool against Black Cherry and grass encroashment until 2015



No herbicides

*a.o. Wallis de Vries et al., 2016. Hoe damherten de duinen veranderen – effecten op flora en fauna. Vakblad, feb. 2016*

# Fallow Deer (spring counts)



# Thanks!

**Pitch Amsterdam Dunes: Rewilding**

1. Leo van Breukelen, Ecologist at Waternet, the water company of Amsterdam and for today relevant, manager of the Amsterdam Dunes.
2. A dune area of 34 $km^2$ located at the centre of the Dutch west coast. It is part of the N2000 site Kennemerland Zuid. It has a function as nature reserve, with 1 M visitors a year an important role for recreation and last but not least for the production of drinking water for metropole Amsterdam.
3. At the moment we don't use large herbivores in the management of our site! Why? Because since a couple of years the area is overgrazed by a wild herbivore: Fallow deer. Until 2015 we used cattle from a local farmer and a hardy type of sheep.
4. The use of Sheep and cattle was mainly to stop grass encroachment or aimed at the removal of Black Cherry (*Prunus serotina*). This invasive species threatened typical dune habitats, especially the so called Grey Dunes.
5. Fallow deer numbers could increase due to the absence of large predators and absence of active management, which in its turn is due to a emotional public debate and political decisions. At the moment fallow deer density is around 150 per $km^2$ (1,5 animals/ha, size: 5000)!
6. Sheep were often used in temporal high densities after mechanical removal of *Prunus serotina*. Cattle grazed in low densities.
7. In 2016 we started with yearly culls and we aim at a population 23/$km^2$ in 2021 (800). So it will take 5 years. By then the use of cattle and sheep might return.
8. The effect of the overabundance Fallow deer is devastating. Only some poisonous plant species succeed to flower, and especially insect fauna deteriorate
9. We still see a yearly increase in numbers so we assume there are no problems with health. Occasional veterinarians study cause of dead and until now never found a special reason.
10. Grazing is a crucial part of ecological processes, but an intermediate feeder like fallow deer hardly consumes rough species and if, it does only after all other species are gone.
11. Ecological we can learn from this case. When introducing a wild herbivore like fallow deer in absence of predation, yearly culls are needed to prevent damage and loss of biodiversity.

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