



# Geese monitoring in the Netherlands

Menno Hornman

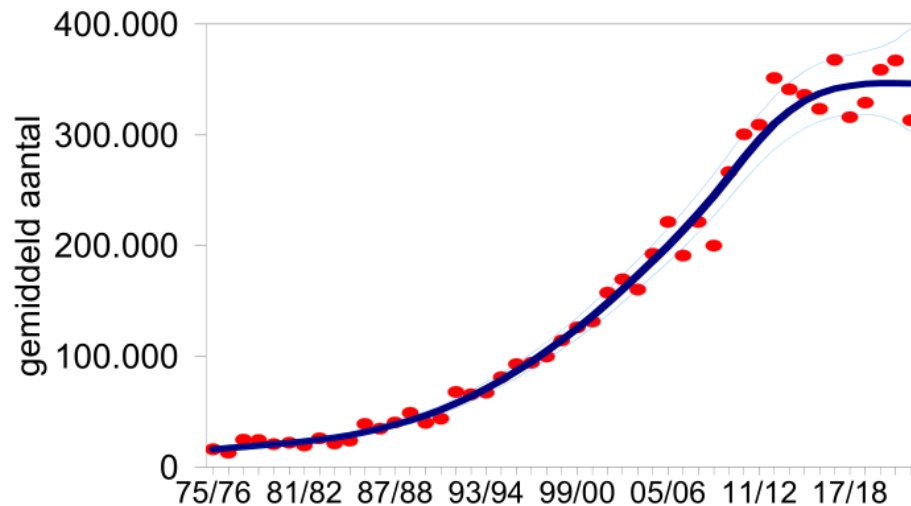
*National Coordinator Dutch  
Waterbird Monitoring Scheme*



**Sovon**

# Waterbird monitoring and Sovon

- Long history of waterbird counts since the sixties
- Proper national numbers and trends from 1975 onwards
- From 1992/93 onwards coordination of the Dutch waterbird census by Sovon Vogelonderzoek Nederland



National trend of Barnacle Goose

# Waterbird monitoring and Sovon



The Dutch waterbird census scheme is part of a governmental ecological surveillance scheme ('NEM'),



carried out in association with Statistics Netherlands,



Ministerie van Economische Zaken

supported by:



Rijkswaterstaat  
Ministerie van Infrastructuur en Milieu

- Dutch Ministry of Economic Affairs
- Dutch Ministry of Infrastructure and the Environment.

# Dutch Waterbird Monitoring scheme

## Goals of the monitoring program:

- Assess national and site-based trends in waterbird numbers at key sites, including all SPA's / EU Natura 2000 sites
- Trends in National State Watersystems
- Several international frameworks: International Waterbird Census (IWC), WI goose surveys & European Goose Management Platform and the Trilateral Monitoring and Assessment Program (TMAP) of the Wadden Sea countries.
- Agricultural areas important for grazing waterfowl



# Dutch Waterbird Monitoring scheme

- Monthly counts of all waterbird species in State Water systems and Special Protected Areas (*Sep - Apr or all year round*)
- Complementary monthly counts of geese and swans in agricultural areas (*Sep - Apr / May*)
- Counts of other sites in January (IWC Midwintercount, including sites for seaducks)
- Complete high tide count of Wadden Sea, five times per year: *four in fixed months (Sep, Nov, Jan, May), one month changes*

# Geese summer counts

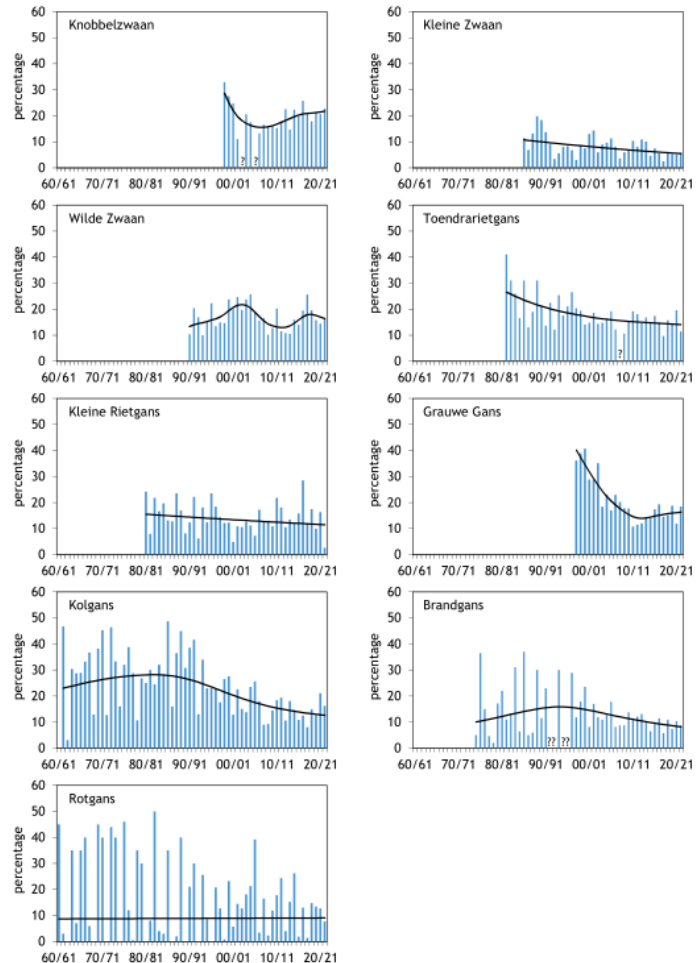
- Not (yet) part of the national waterbird monitoring scheme
- Initially established by the national hunters' association in 2012, after two one-off counts by Sovon (2005 and 2009)
- Nowadays mixture of professional counts (3 Provinces, by Sovon-staff) and counts coordinated by the regional Wildlife Councils and carried out by hunters and site-managers (volunteers)
- No central data repository (12 provinces, each with own dataset), but in framework of EGMP data collection by Wildlife Council of Noord-Holland (Sofia Kolkman), together with offtake data (birds shot under derogation)

# Geese summer counts

- Fieldwork according to standardized protocol (highly similar to winter counts), 3rd week of July each year
- Nowadays coverage >90% but in older years variable
- Additional age counts by Sovon-staff in 5-6 provinces (Greylag Goose, Barnacle Goose)

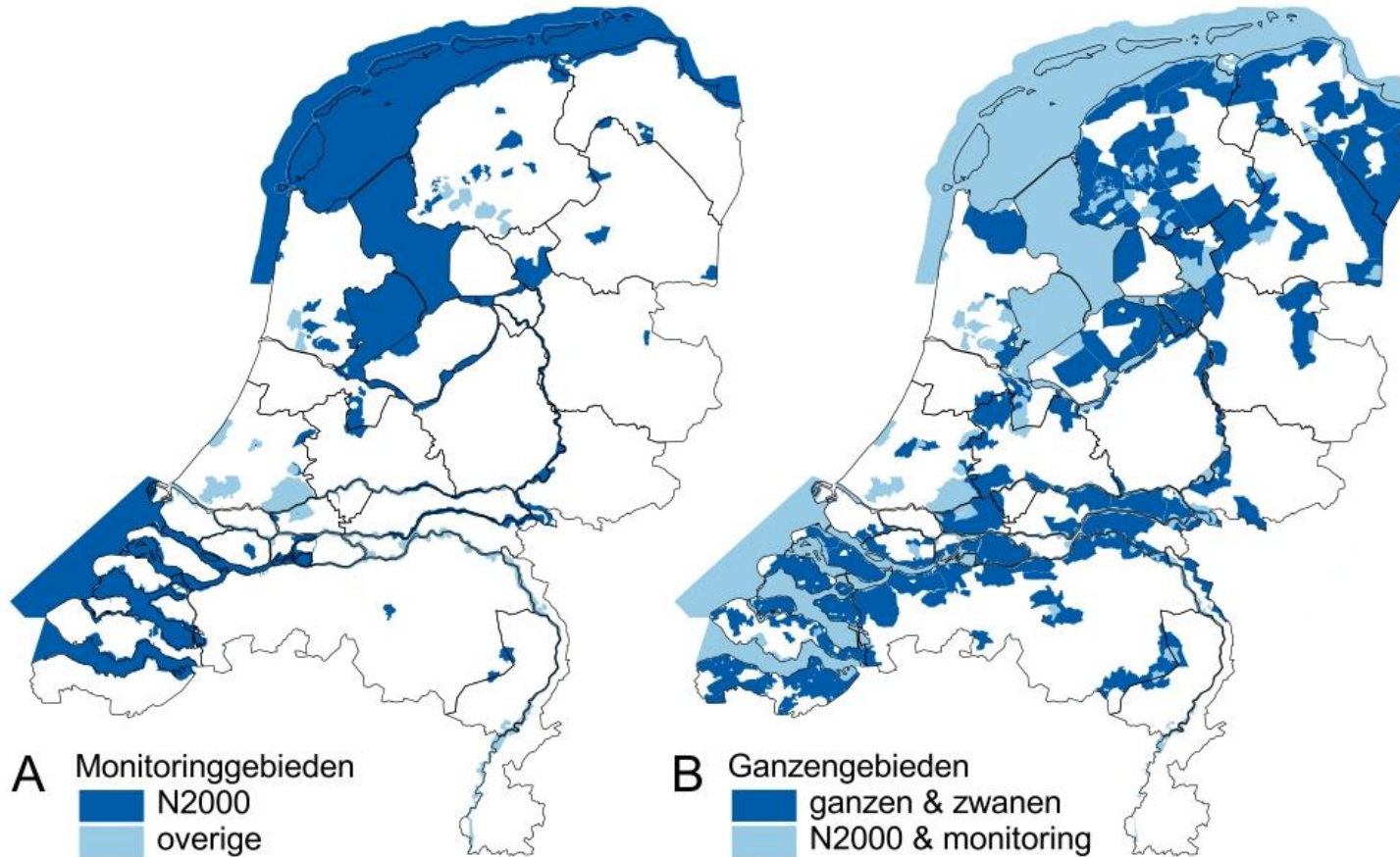
# Sex ratio counts

Carried out by a small group of selected counters





# Dutch Waterbird Monitoring scheme



# Dutch Waterbird Monitoring scheme

Completeness  
IWC Midwinter  
count (2022,  
c.25.000 km<sup>2</sup>)

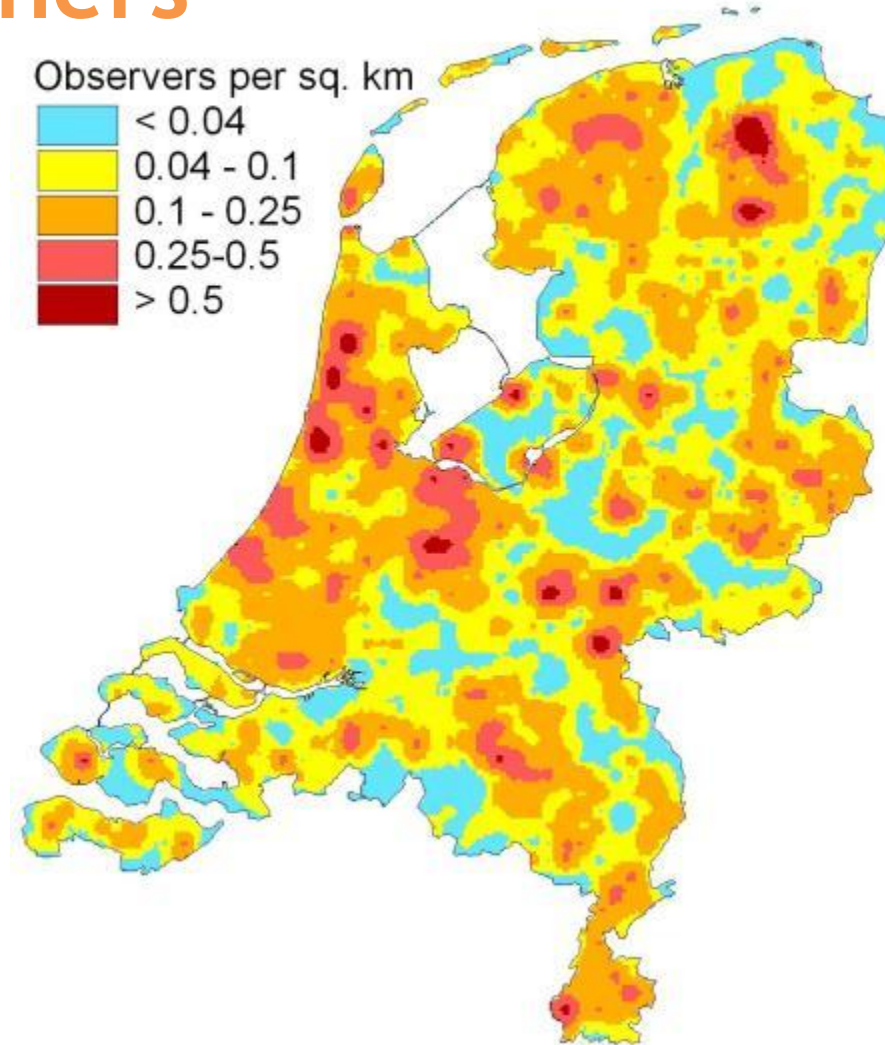


# Dutch Waterbird Monitoring scheme

- Run by 2200 volunteers
- 3000 counting units of c 400 ha each
- Some large areas by professional counters using boats and airplanes



# High density of observers & birdwatchers



# Dutch Waterbird Monitoring scheme

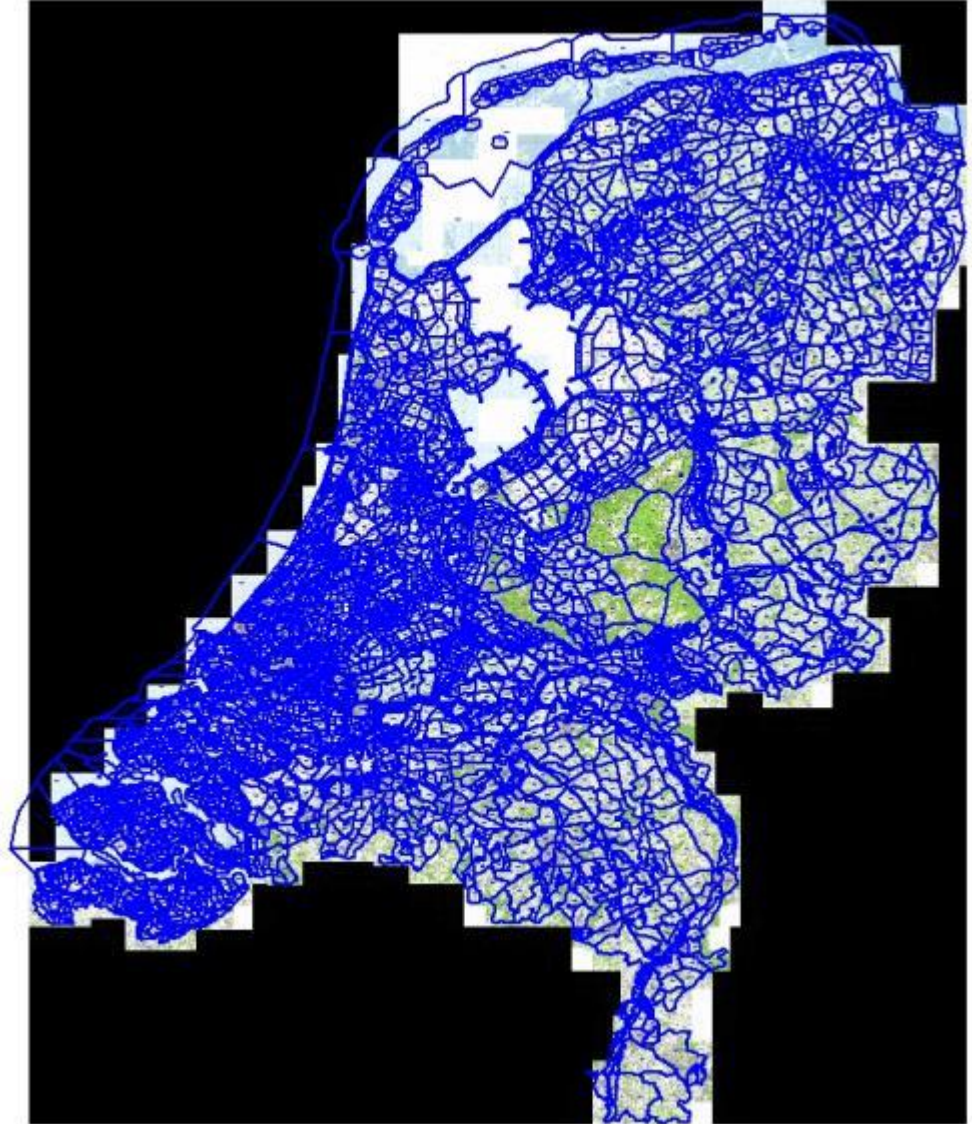
## Principal approach

- Counting units
- Fixed counting date
- Complete count of unit
- Any suitable waterbird habitats
- All waterbirds present
- Bond with the counting unit
- Avoid double counts



# Dutch Waterbird Monitoring scheme

Whole country divided  
into counting units



# Dutch Waterbird Monitoring scheme

counting units:

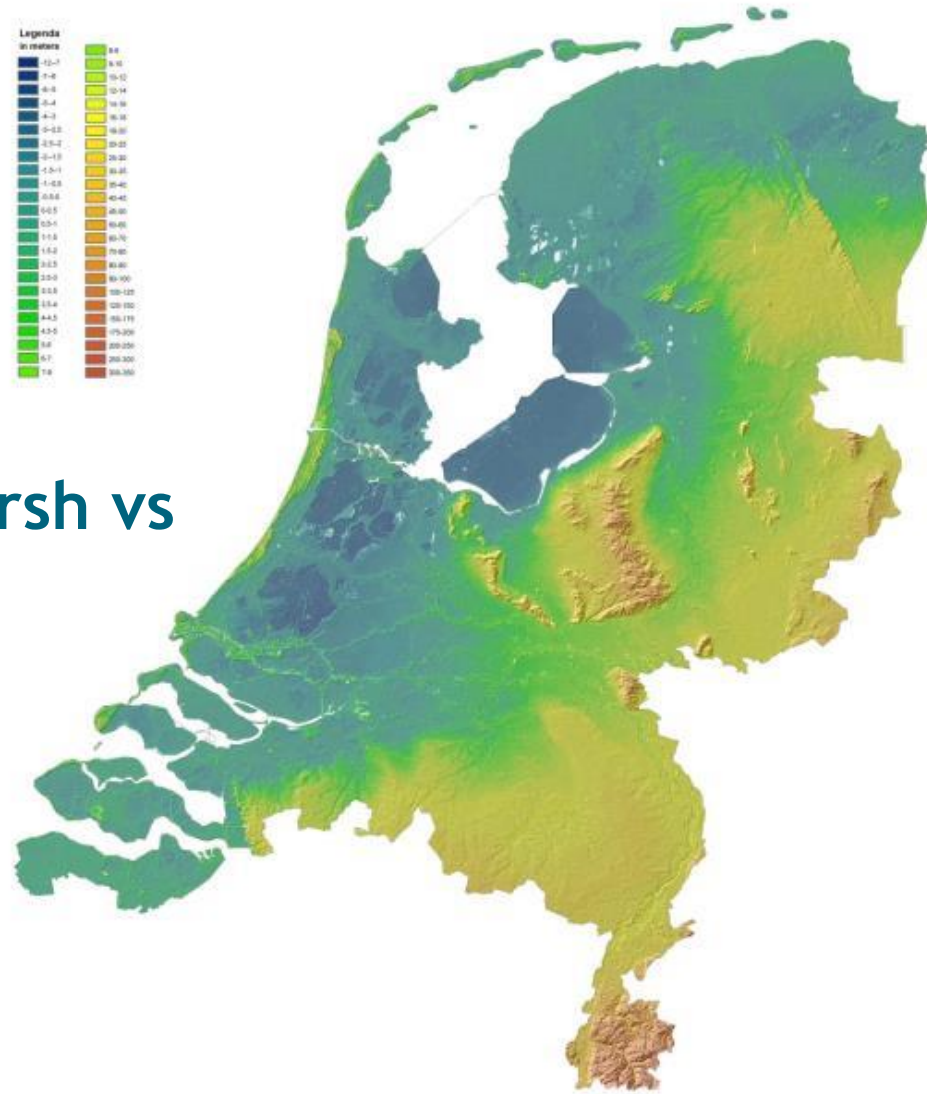
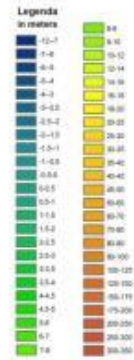
**Size** matches

presence of  
waterbirds/geese:

Smaller in lower  
parts, larger in  
higher parts

But also water/marsh vs  
agricultural  
areas

Actueel Hoogtebestand Nederland (AHN)  
met reliëf-schaduwwerking



# Dutch Waterbird Monitoring scheme

## Principal approach

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### Inland sites



2020	
18 juli	selectie van monitoringgebieden <sup>1</sup>
15 augustus	selectie van monitoringgebieden
12 september	monitoringgebieden, ganzen- en zwanentelling <sup>2</sup>
17 oktober	monitoringgebieden, ganzen- en zwanentelling
14 november	monitoringgebieden, ganzen- en zwanentelling
12 december	monitoringgebieden, ganzen- en zwanentelling
2021	
16 januari	monitoringgebieden, ganzen- en zwanentelling
13 februari	monitoringgebieden, ganzen- en zwanentelling
13 maart	monitoringgebieden, ganzen- en zwanentelling
17 april	monitoringgebieden, ganzen- en zwanentelling
1 mei	telling Brand- en Rotgans
15 mei	selectie van monitoringgebieden
12 juni	selectie van monitoringgebieden

### High tide roosts



2020	
11 juli	steekproeftelling <sup>3</sup>
22 augustus	steekproeftelling
19 september	integrale telling <sup>4</sup>
17 oktober	steekproeftelling, ganzen en zwanentelling
7 november	integrale telling
19 december	integrale telling
2021	
16 januari	integrale telling
13 februari	steekproeftelling, ganzen- en zwanentelling
13 maart	steekproeftelling, ganzen- en zwanentelling
17 april	steekproeftelling, ganzen- en zwanentelling
1 mei	telling Brand- en Rotgans
15 mei	integrale telling
12 juni	steekproeftelling

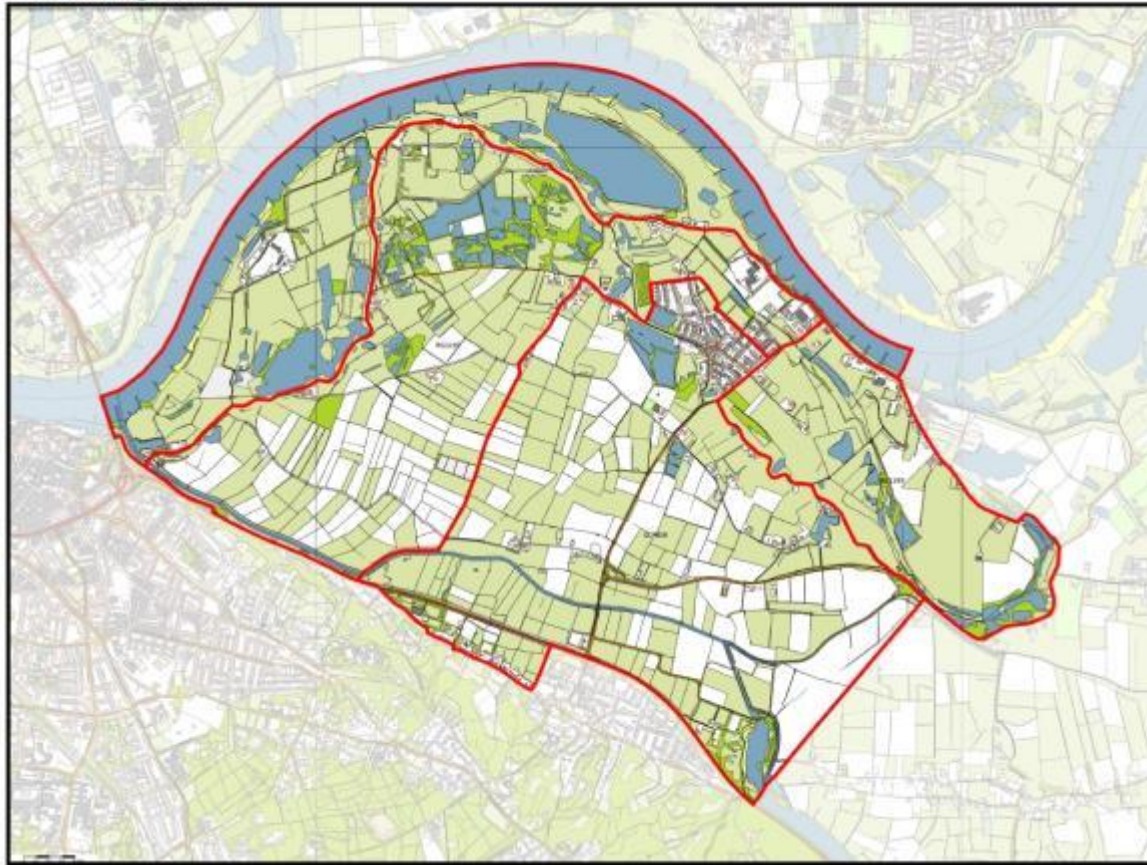


# Dutch Waterbird Monitoring scheme

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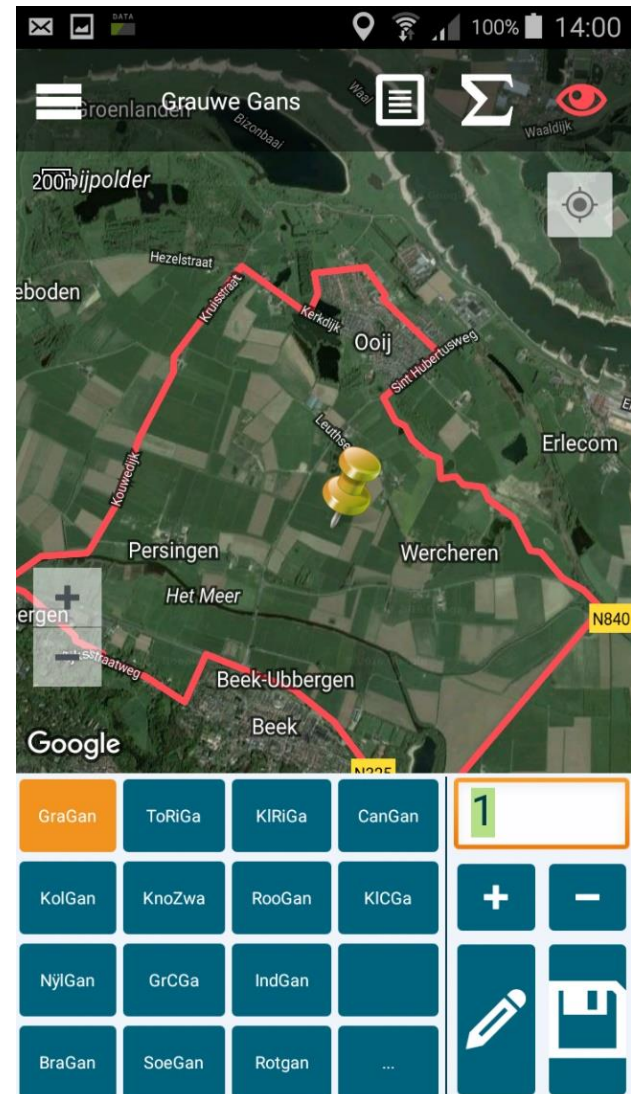
Overzicht telgebieden



# Dutch Waterbird Monitoring scheme

## Data collection

Nowadays with an app  
on smartphone  
or tablet:  
Avimap



# Dutch Waterbird Monitoring scheme

Data collection

Fill-in form: species sheet

Invoer telling – RG1192, Ooijpolder west (binnendijks)

Telling van : 2 november 2017 van 10:00 tot 11:00

Bezoekgegevens »

Telling afsluiten en waarnemingen valideren

Soortenlijst


Soort	Aantal gebied	Aantal stip	Aantal totaal
Knobbelzwaan	<input type="text"/>	+	
Kleine Zwaan ⓘ	<input type="text"/>	+	
Wilde Zwaan	<input type="text"/>	+	
Toendrarietgans	<input type="text"/>	+	
Kleine Rietgans	<input type="text"/>	+	
Kolgans	<input type="text"/>	+	
Grauwe Gans	<input type="text"/>	+	
Soepgans	<input type="text"/>	+	
Indische Gans	<input type="text"/>	+	
Grote Canadese Gans	<input type="text"/>	+	
Kleine Canadese Gans (minima)	<input type="text"/>	+	
Brandgans	<input type="text"/>	+	
Nijlgans	<input type="text"/>	+	

U kunt de sorteervolgorde en getoonde soorten wijzigen in uw voorkeuren »

Ontbreekt er een soort in deze tabel? Voeg de soort dan rechts van de kaart in.

Telling afsluiten en waarnemingen valideren

Kaart van het gebied



geen stip plaatsen

Waarneming details

Soort

Aantal

Meer details? »

Opmerkingen

Opslaan

# Dutch Waterbird Monitoring scheme

Data process: used database PostgreSQL  
(open source database ([www.postgresql.org](http://www.postgresql.org)))



The world's most advanced  
open source database.

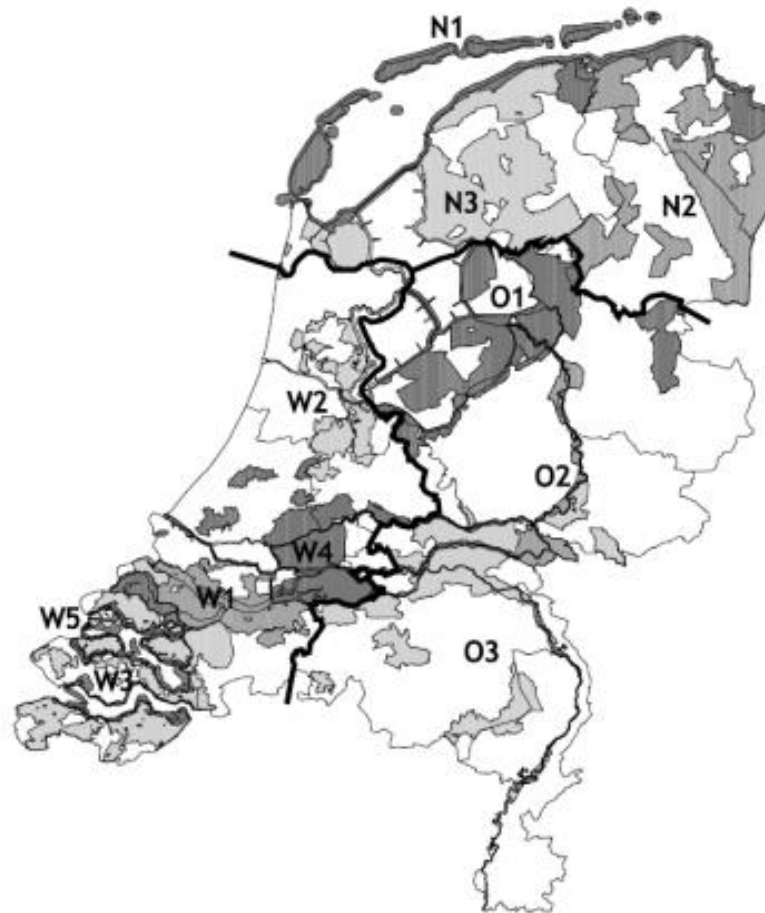
# Meetnet Watervogels

Additional estimates (“imputing”) Missing counts are estimated with U-index based on:

- 1) ratio of average numbers in counting area and other areas in the same stratum (plot factor)
- 2) ratio of average numbers in missing month and other months (month factor)
- 3) ratio between average numbers in year with missing count and other years (year factor)

# Dutch Waterbird Monitoring scheme

## ‘Strata’ for geese imputing.



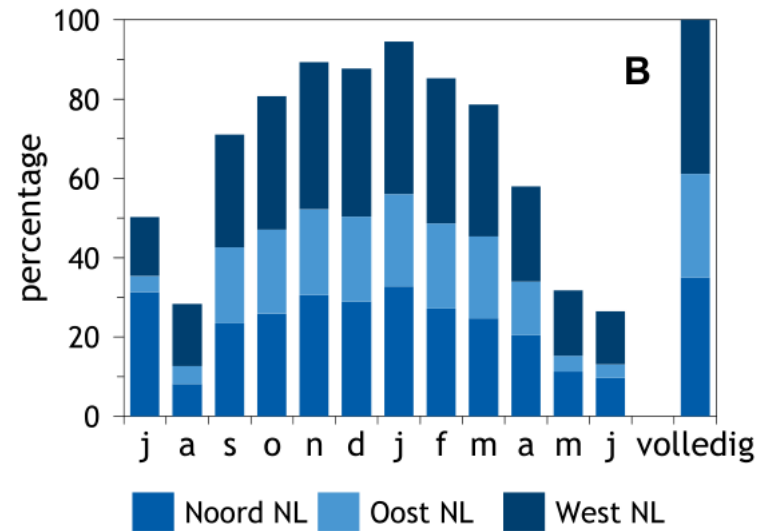
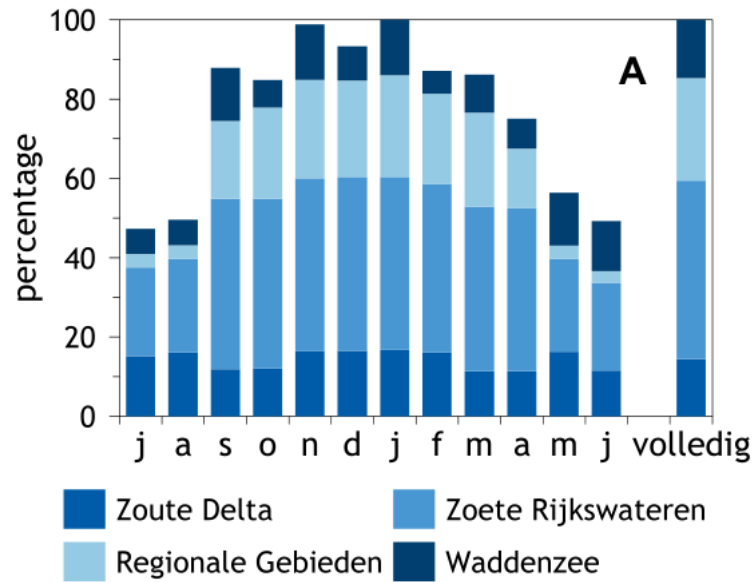
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# Dutch Waterbird Monitoring scheme

## Completeness of monthly counts (2021/2022)





# Dutch Waterbird Monitoring scheme

Additional estimates (“imputing”) Missing counts are estimated with U-index based on:

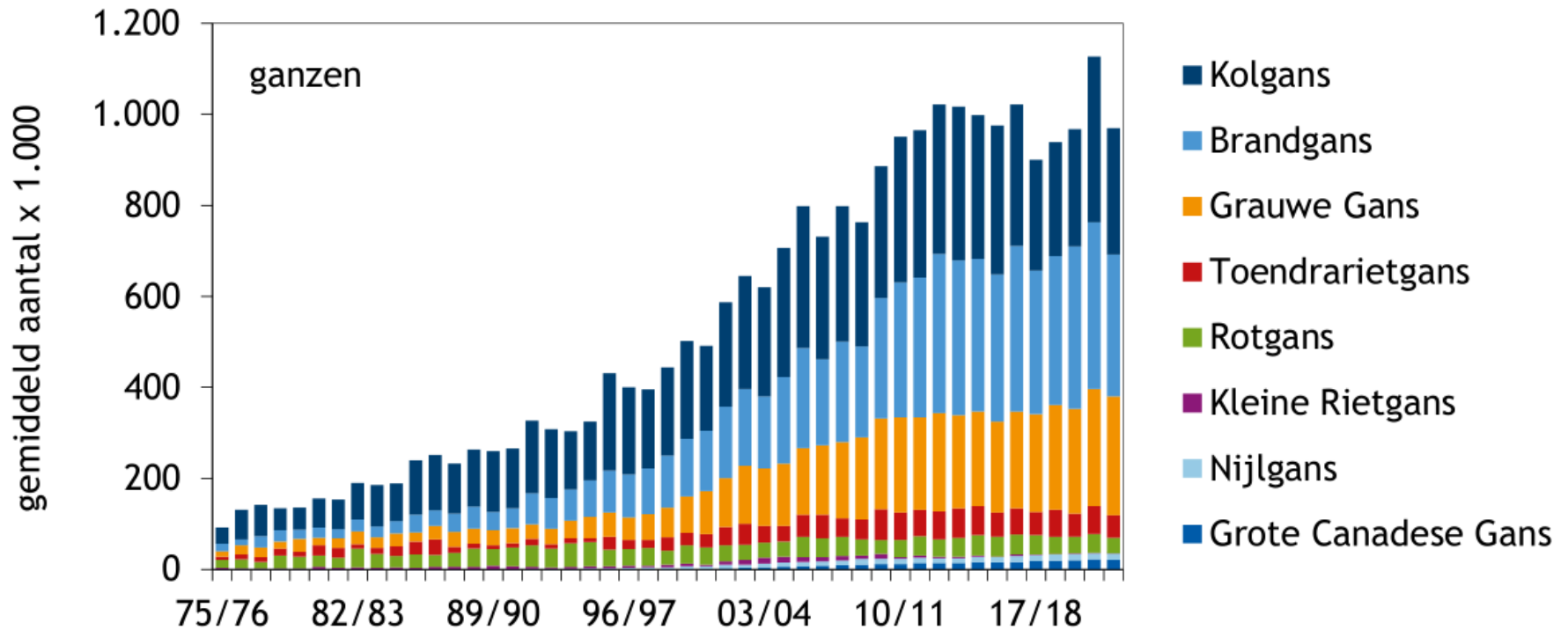
- 1) ratio of average numbers in counting area and other areas in the same stratum (plot factor)
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# Dutch Waterbird Monitoring scheme

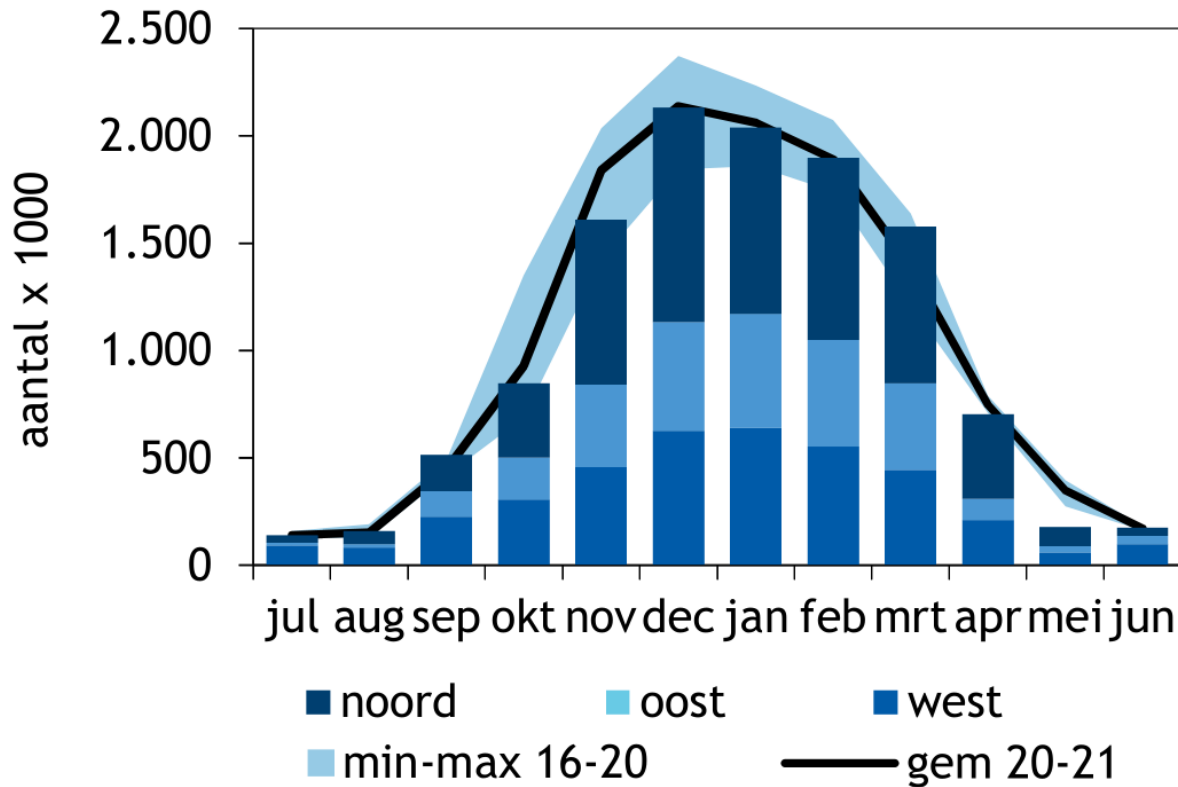
## Data process:

- 1) Counting season July 2022 - June 2023
- 2) Collection of data: during season to Oct/Nov 2023
- 3) filter out double counts and extensive data control winter 2023/2024
- 4) imputing data c Mar-Apr 2024
- 5) Calculate trends by Statistics Netherlands May-June 2024
- 6) Data available Aug-Sep 2024

# Results



# Results



# Challenges



# Challenges

Retain and recruit volunteer counters!

