



Ministry of Infrastructure and the  
Environment



# Multiple Stakeholder Approach

to reduce the  
geese strike risk  
at Schiphol AMS

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&  
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CAA The Netherlands

# geese habitat in NL



# geese habitat in NL





# geese habitat in NL



# 2 populations



**~2.1 million geese breeding north and wintering in NL**

**~ 60,000 geese stay year-round in NL**







# geese movements



# geese struck at AMS





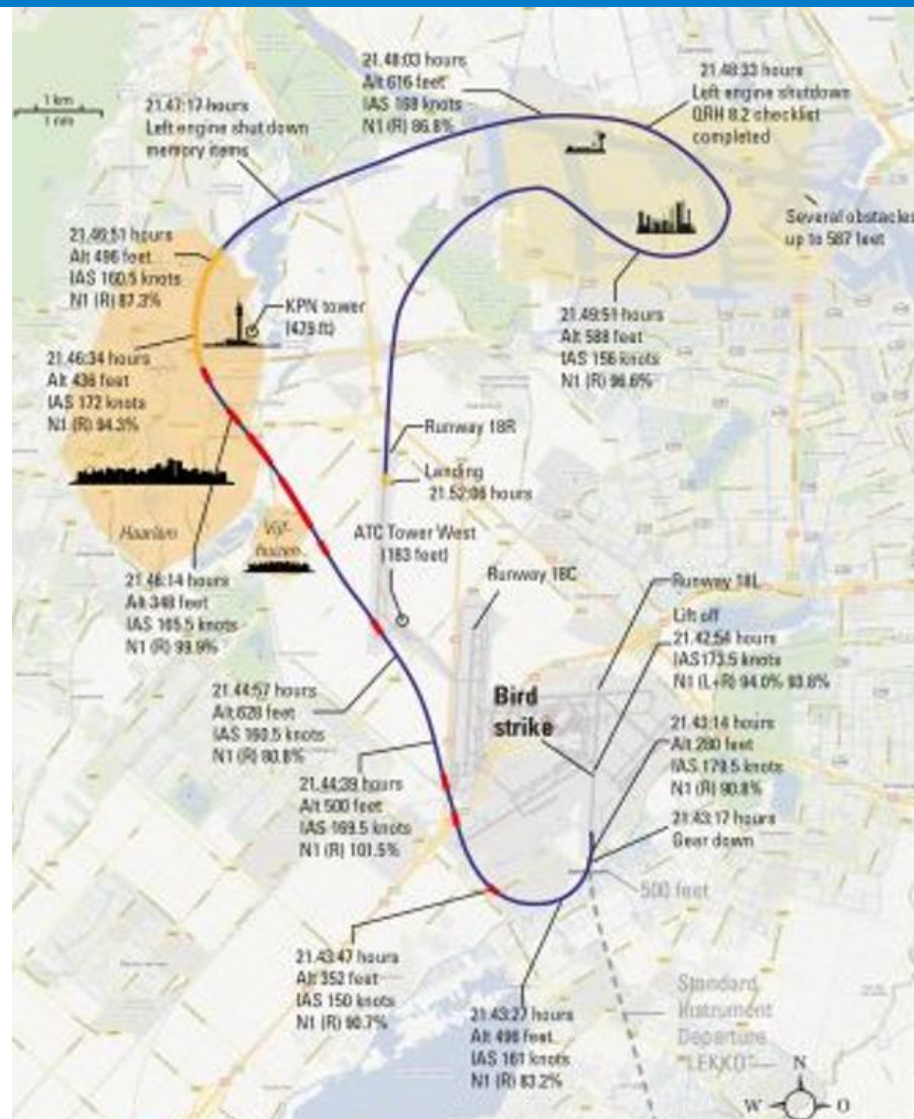
6 June 2010,  
A Boeing 737 struck



9 Canadian geese



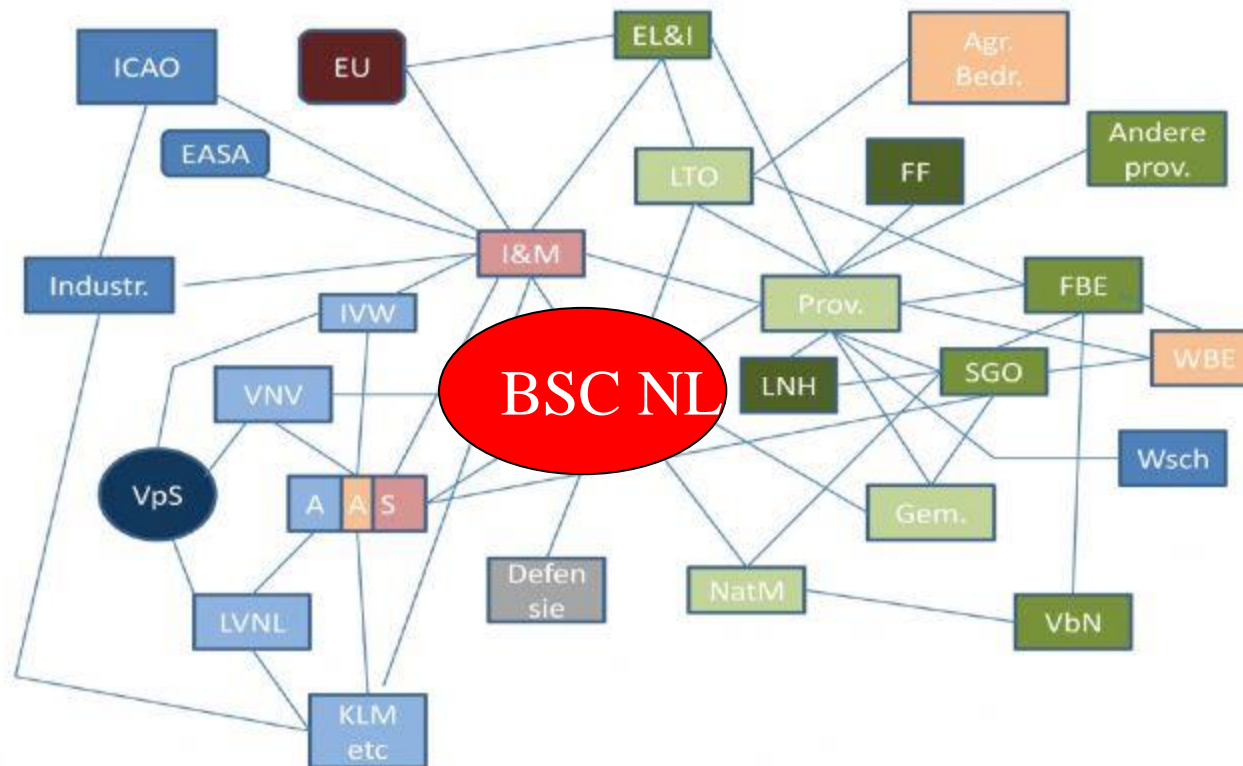
# precautionary landing





AVIATION/AVIATION SAFETY

LAND USE: NATURE MANAGEMENT/  
AGRICULTURE/WATER





Seven BSC NL stakeholders signed a covenant to work together to reduce the geese strike risk at AMS:

1. Dutch Pilots Association (Dutch FALPA)
2. Amsterdam Airport Schiphol
3. Nature organizations
4. Farmers association
5. Municipality of the Schiphol area
6. Provinces within Schiphol 20 km zone
7. State of The Netherlands (CAA and Military)

Two BSC NL stakeholders are participating, without signing officially:

8. Birdlife Netherlands
9. KLM
10. ATC and other airlines are indirectly linked as member of BSC Schiphol





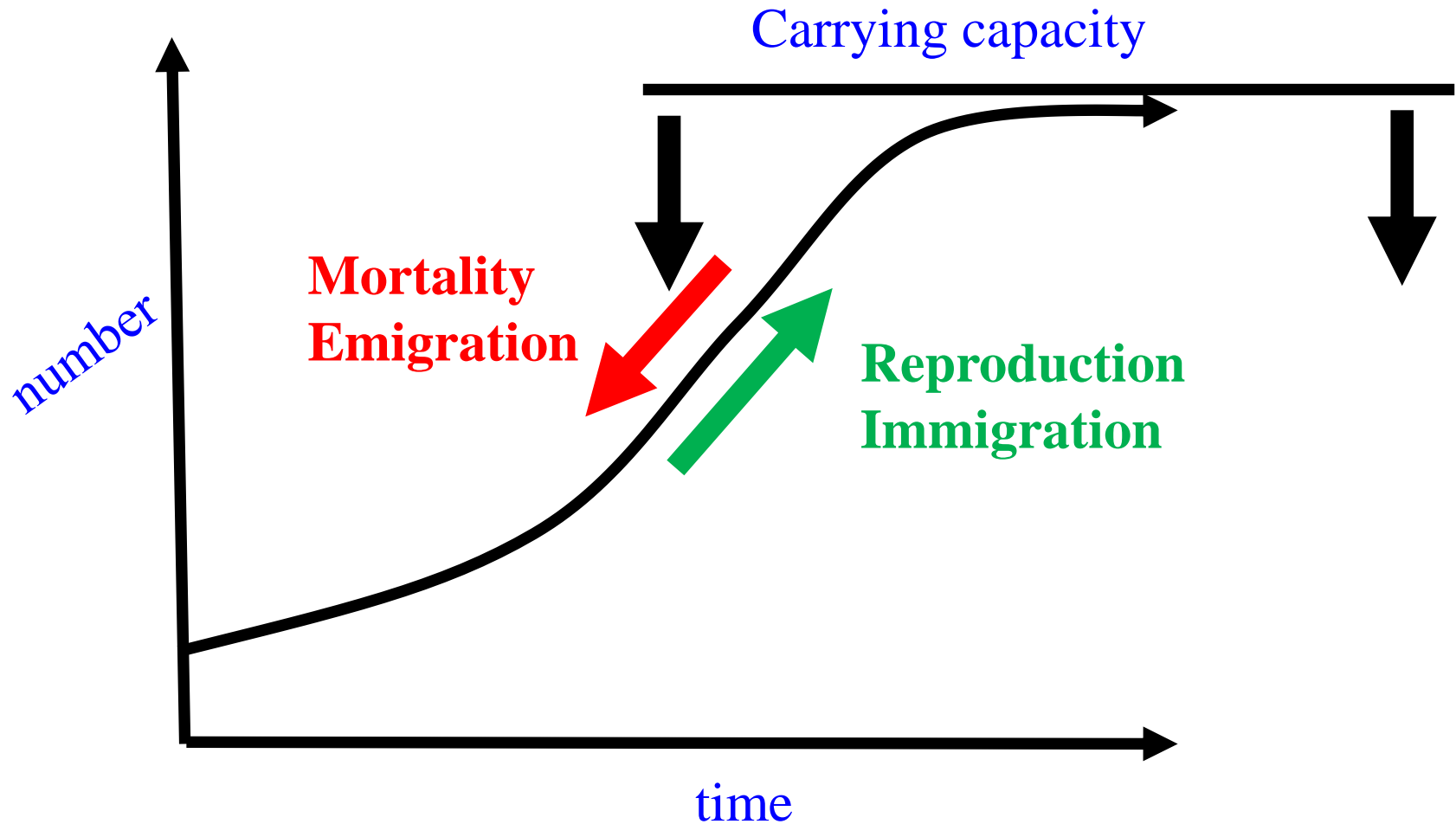
## Roles of the BSC NL stakeholders:

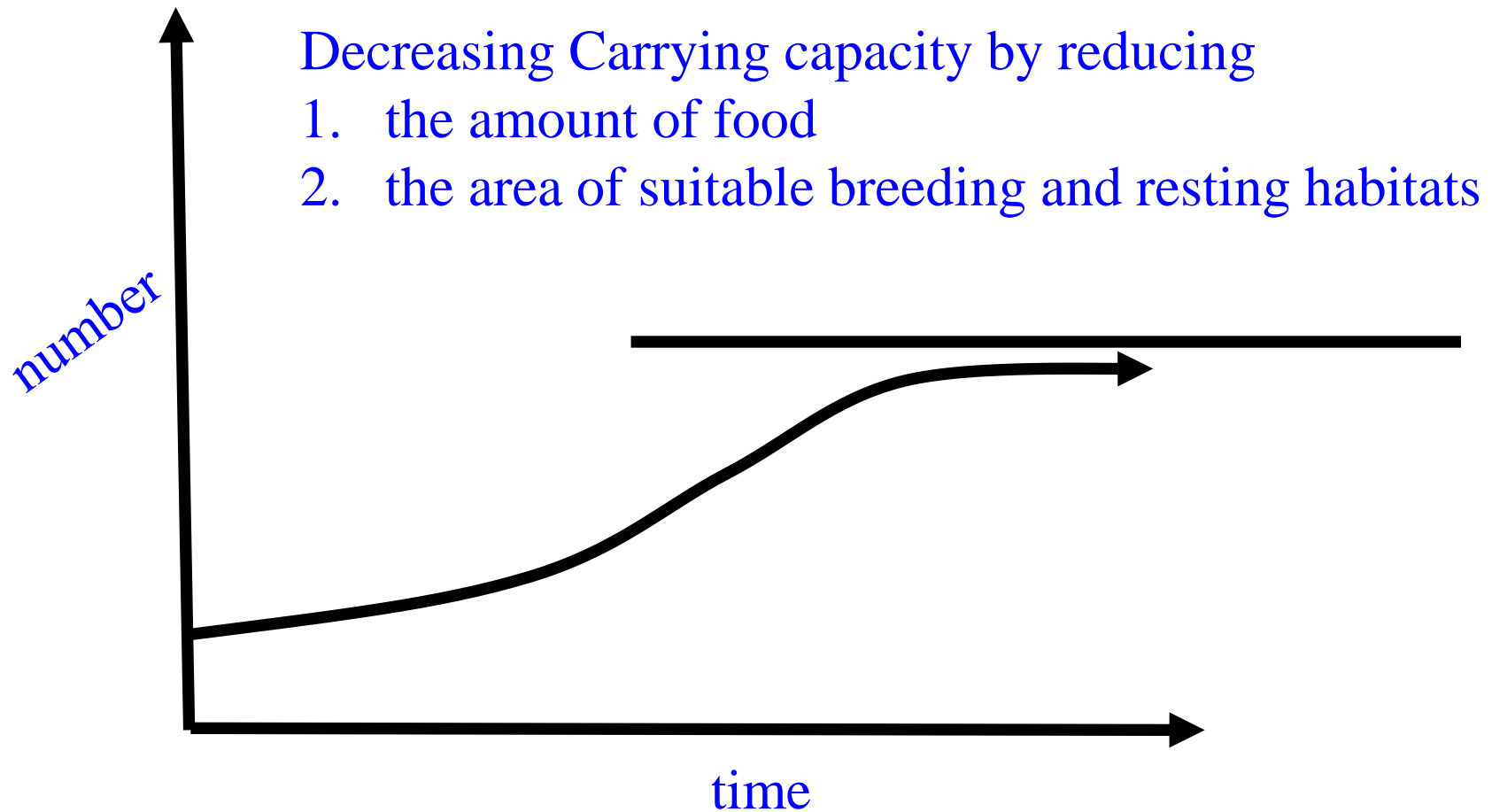
- |                              |   |
|------------------------------|---|
| 1. Dutch Pilots Association: | keep stressing the safety aspect                              |
| 2. Schiphol:                 | 0 tolerance for geese at the airport & trials with bird radar |
| 3. Nature organizations:     | allow culling policy in their areas                           |
| 4. Farmers:                  | change farming policies                                       |
| 5. Municipality:             | amend spatial planning policy                                 |
| 6. Provinces:                | facilitate culling policy                                     |
| 7. State of The Netherlands: | coordination  |
| 8. Birdlife Netherlands:     | ecological advise & allow culling policy                      |
| 9. KLM and other airlines:   | provide data  |
| 10. ATC:                     | research possibilities for implementing radar information     |

# 4 track approach



1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?





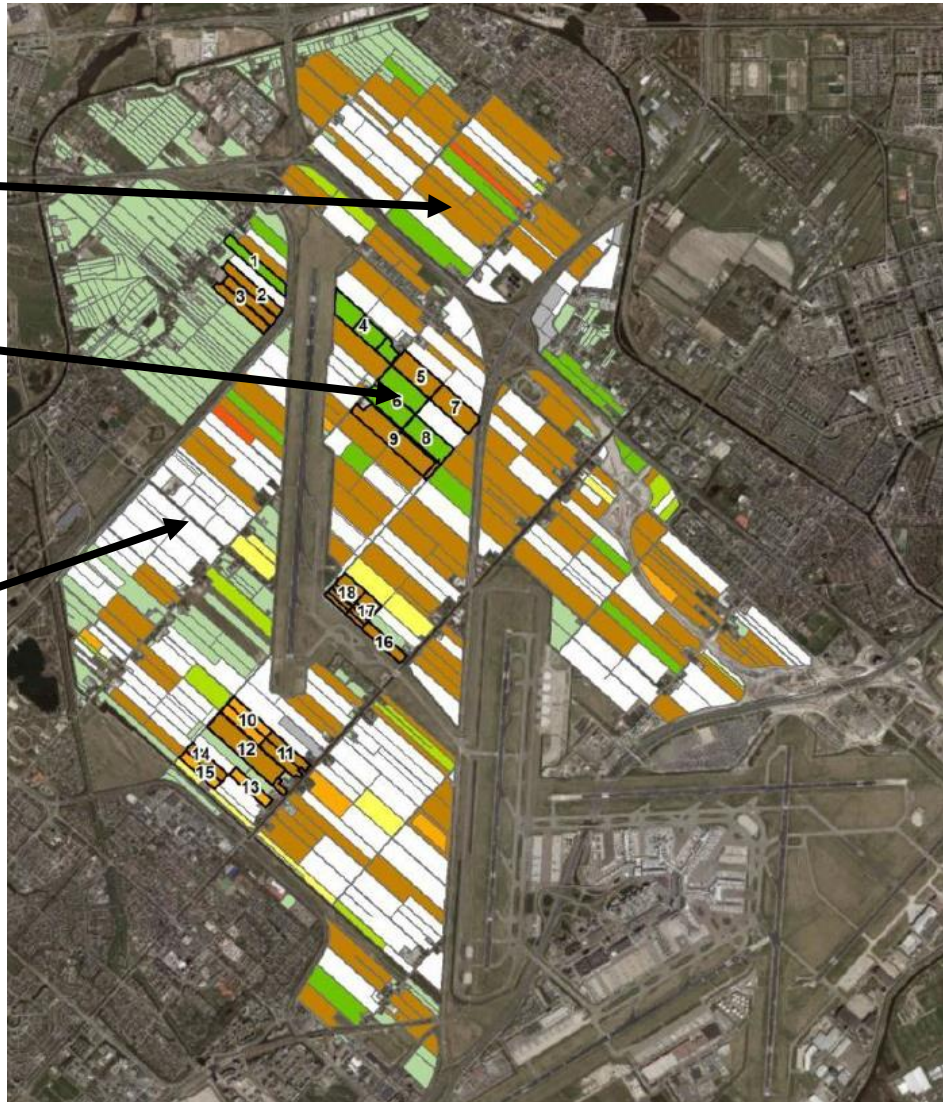


# 2,150 hectares of wheat and barley around AMS

wheat

barley

potatoes  
and  
sugarbeets



yields of  $\sim 9,000$  kg/ha





# harvest losses



counting harvest losses



~ 25 kg / hectare





# Grains are 3 times more nutritious than grass









# Restrict farming policy?



1. Can farmers grow crops that are unattractive for geese?

Yes, but ...

“Farmers are entrepreneurs who grow crops that

1. are suited for the soil and climate
2. are most profitable”



Dutch polder model:



everybody needs to  
do his part





1. 40% of Schiphol vicinity is farmland
2. Yearly economical value is EURO 100 million
3. Farmers have been around longer than aircraft
4. Soil type (clay) is very good for wheat and barley

Solution:

- \* continue growing wheat and barley
- \* harvest losses need to be made unavailable for geese within 48 hours post harvest



reduce the availability



of grains



Farmers participate on a voluntary basis:

- \* Creates real commitment and enthusiasm
- \* awareness: farmers feel involved and responsible
- \* 95% of farmers participated within two years

Financial compensation EUR 853 / hectare for:

1. Not harvesting the straw
2. Extra labor (and machineries)

# From 25 to 1 kg / ha



~95% reduction in the availability of grains around the airport post harvest.

Significant decrease in the number of geese in the area and geese flight movements during harvest time.



# Mitigate geese habitats?



1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

# Mitigate geese habitats?



Can we mitigate the resting / breeding areas?

Yes, we can, but ... “To mitigate existing areas is legally very difficult.”

and “In the Amsterdam area there is a need for more nature areas for the purpose of

- \* nature protection
- \* recreation
- \* water retention”



In the past: CAA had to approve creation of bird attractive habitats.

Change of policy: The local municipality is being held responsible.

In order to avoid conflicts of interests:

1. Land owners need to consult ecologists to make an assessment to prove that the creation of new habitats will not attract hazardous birds
2. Assessment is checked by 3 experts on
  - \* aviation
  - \* ecology
  - \* spatial planning

# change flight schedules?

1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

# change flight schedules?

Can we detect crossing birds and change the flight schedule of aircraft accordingly?

Yes, we can detect crossing birds:

Present: Schiphol Amsterdam Airport has 1 operational radar

Future: 3 extra radars to become operational soon giving the Bird Control Unit extra information.

.... but.... "we can not change the flight schedules too often."

Ongoing study to provide ATC with radar information.



# Reduce the population?



1. Can farmers grow crops that are unattractive for geese?
2. Can we mitigate the resting / breeding areas?
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
4. Can we reduce the population of geese?

# Reduce the population?



Can we reduce the population of geese?

Yes, we can, but....

“the killed geese will be replaced by other geese via:

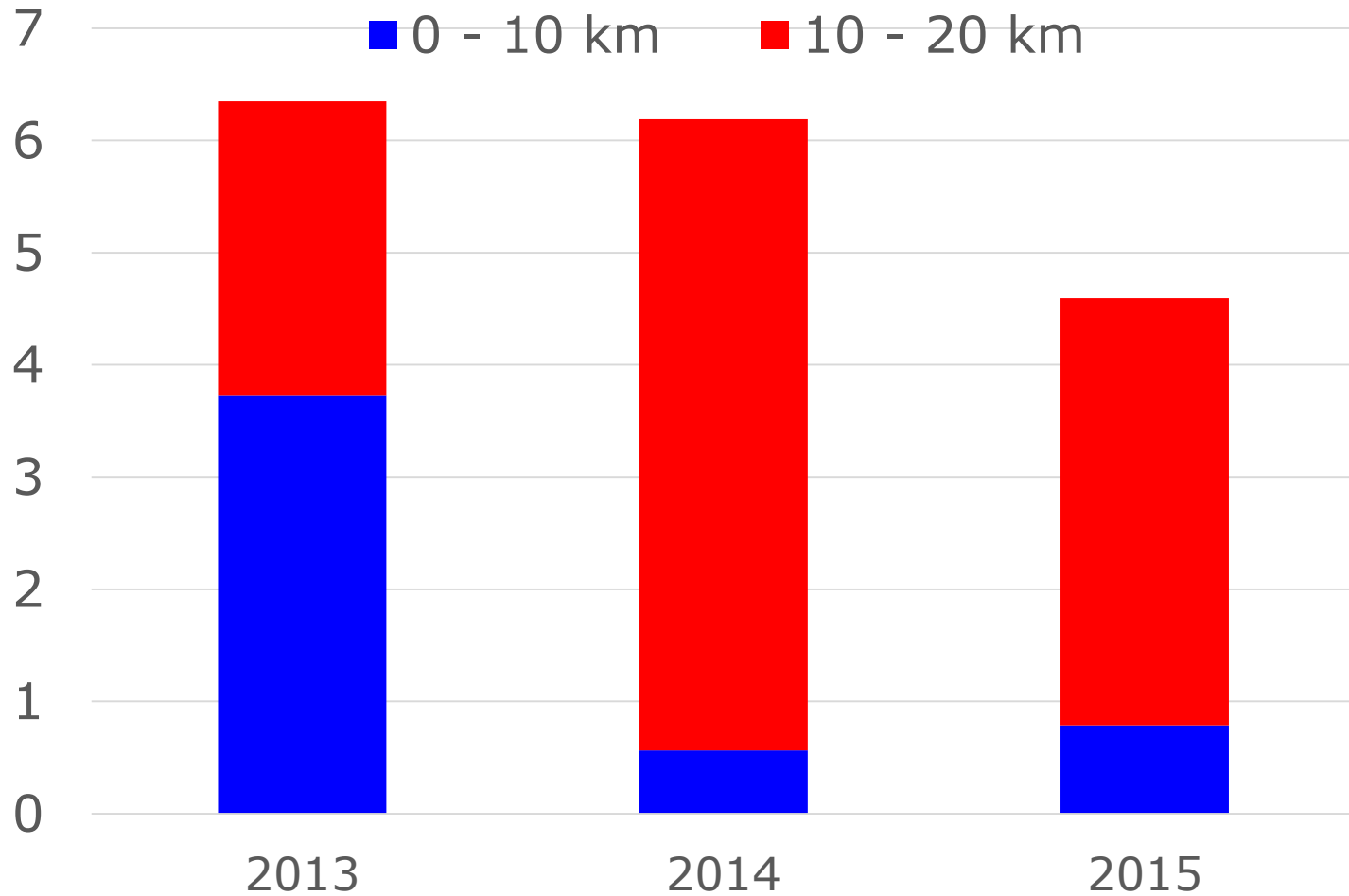
- \* immigration
- \* better breeding results”

# Reduce the population?



- Birdlife Netherlands agreed on culling policy
- Nature organizations agreed on culling policy in their areas
- Provinces have to get licences under very strict nature laws
- Each year eggs treated from  $\sim 3,000$  nests in whole province (unknown number within 0 - 10 and 10 - 20 km zone)

# # geese trapped (x1,000) within 10 and 20 km

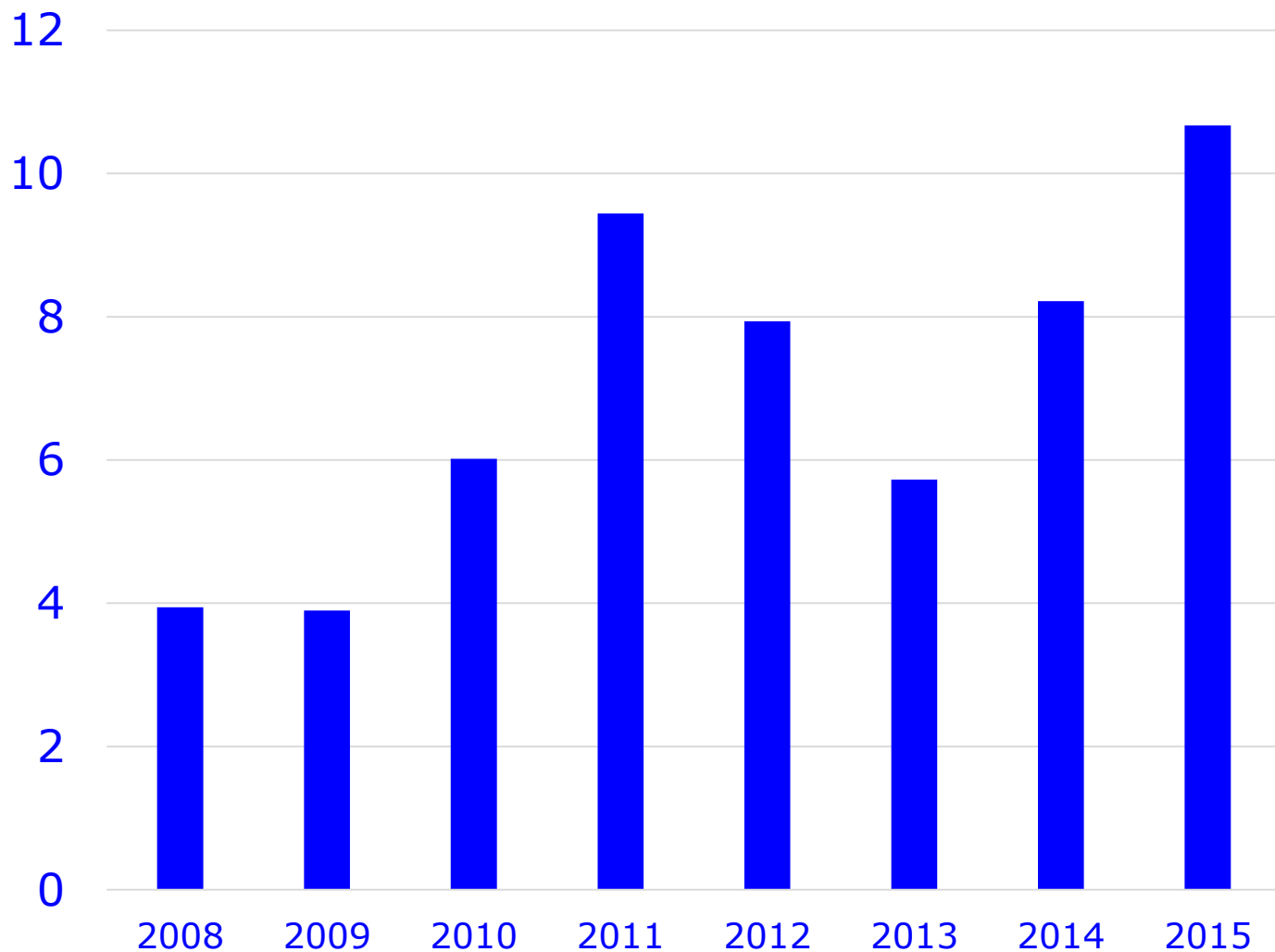




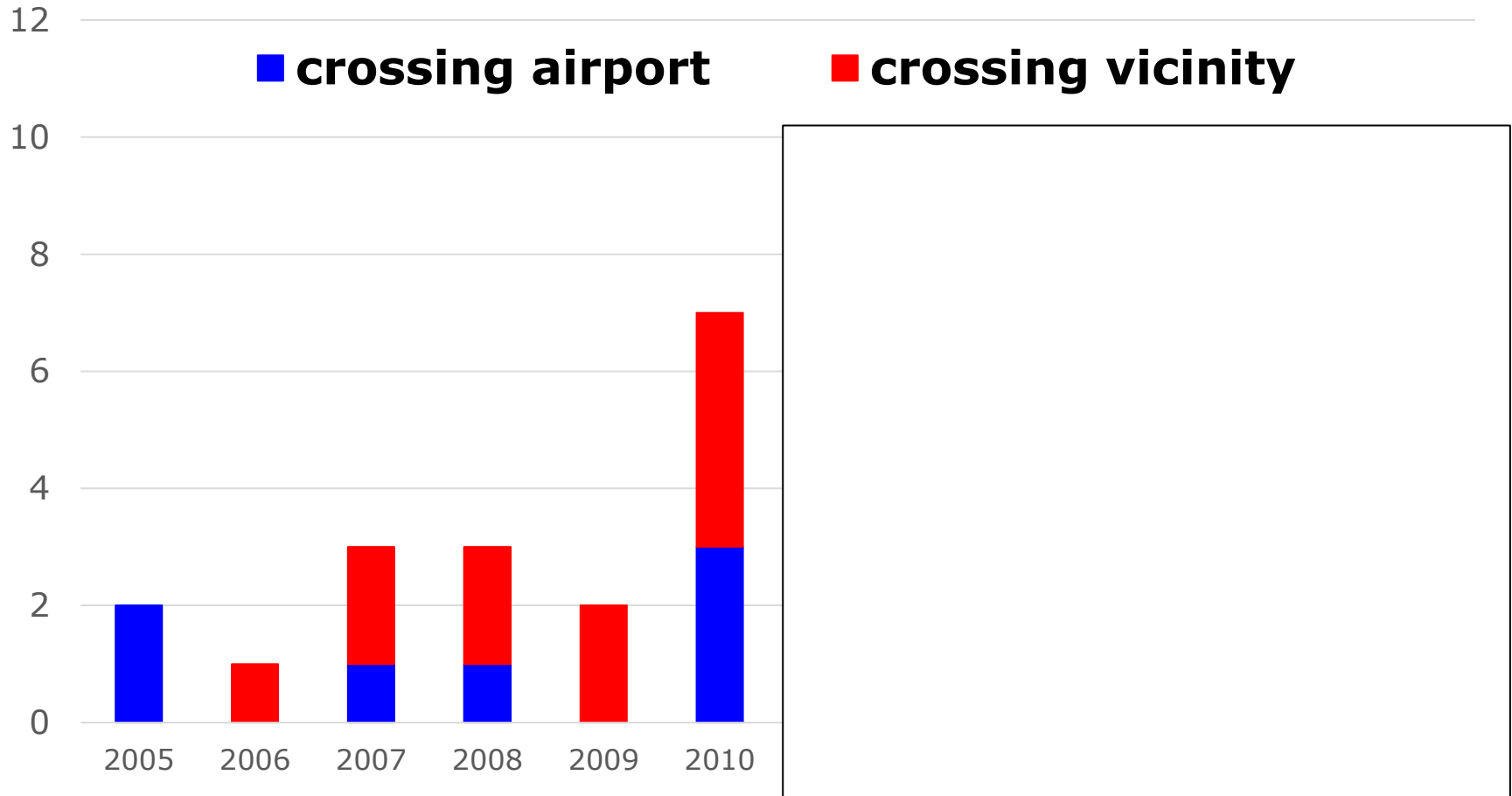
# geese shot (x1,000)



within 10 km



# Is it all effective?



# Future developments



1. Can farmers grow profitable crops that are unattractive for geese?
  - crops for biofuel
  - textile hemp
  - solar panels
  
2. Can we mitigate the resting / breeding areas?
  - ?
  
3. Can we detect geese crossing the airport and change the flight schedule of aircraft accordingly?
  - ongoing research, 3 extra radars for full coverage
  
4. Can we reduce the population of geese?
  - ongoing evaluation of current methods
  - trials with expelling techniques
  - trials with extra hunting efforts



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# Thank You!