



New muskrat control in Flanders A recent success story so far

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Ghent – 2013 July 3th

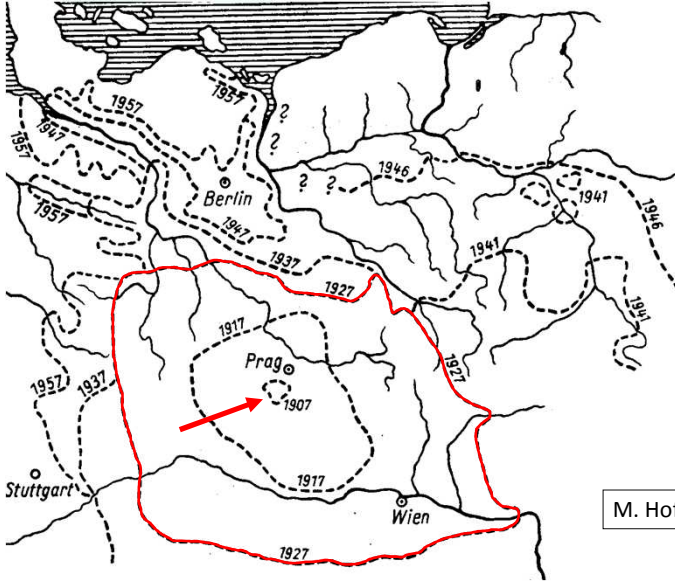


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Early range expansion of the muskrat





M. Hoffman, 1958



In spite of many warnings in scientific reports about their invasiveness and the start of control measures :

- a further increase of the muskrat range in Central Europe.
- the establishment of numerous fur farms and breeding stations

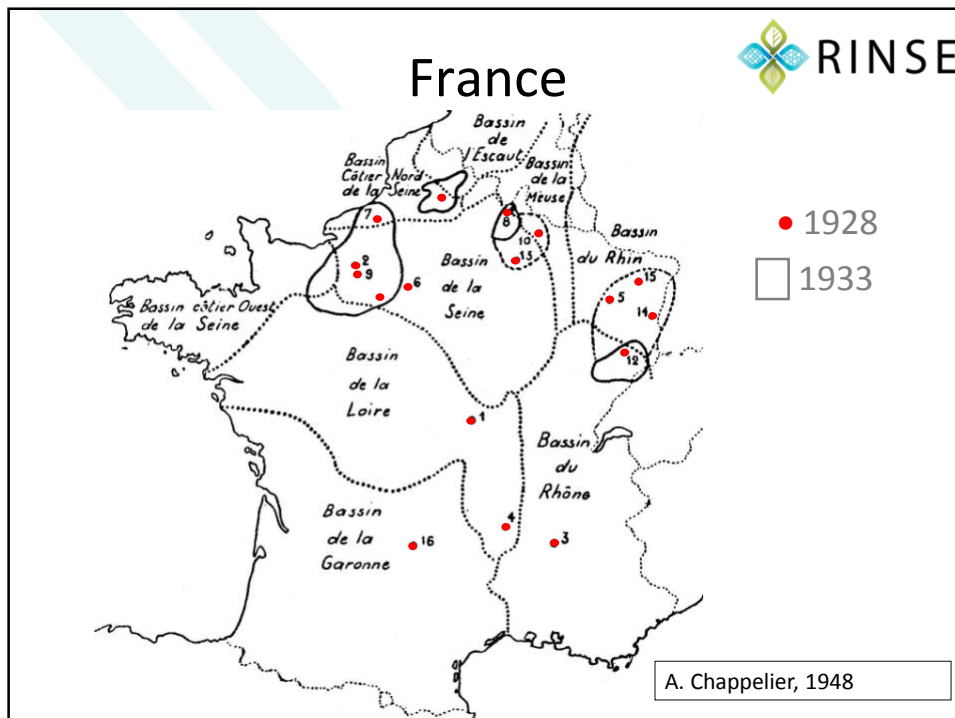
Example : evolution in France and Belgium from **1928** on.

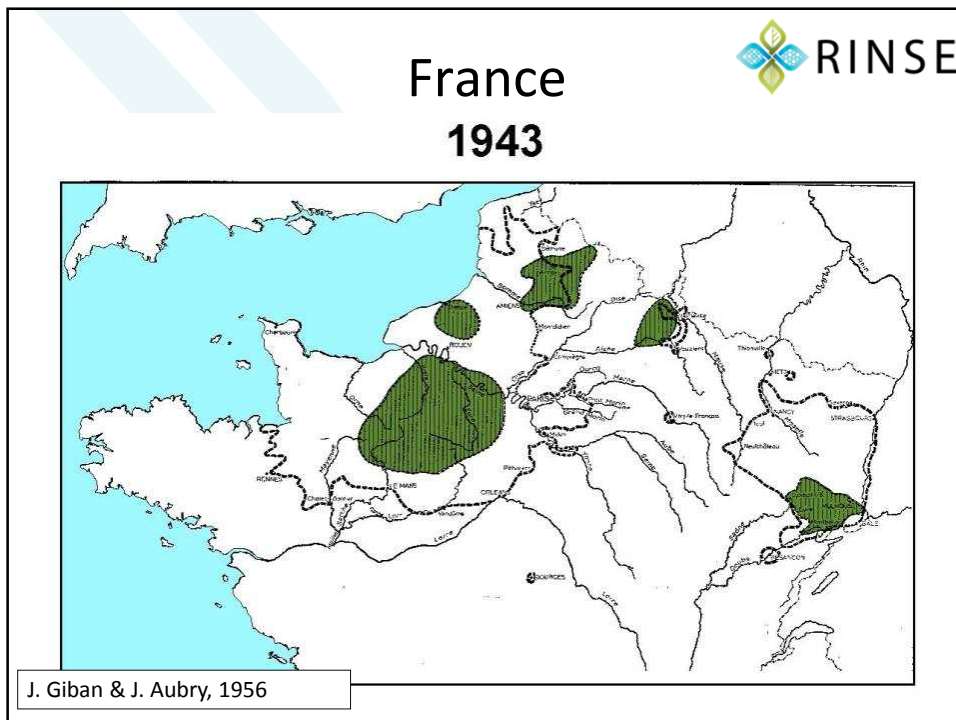
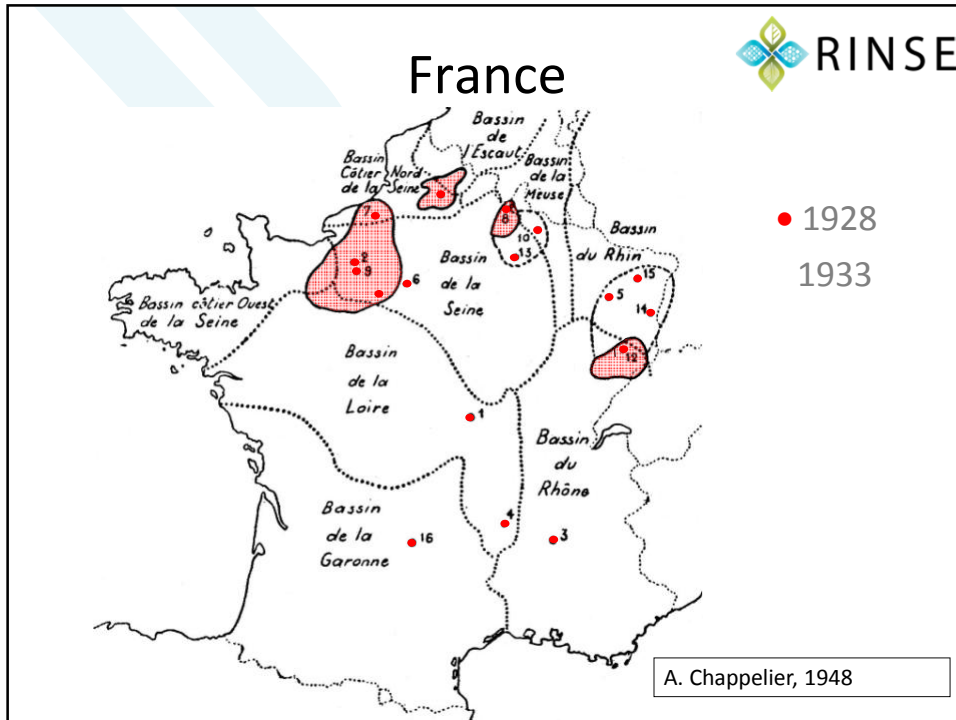


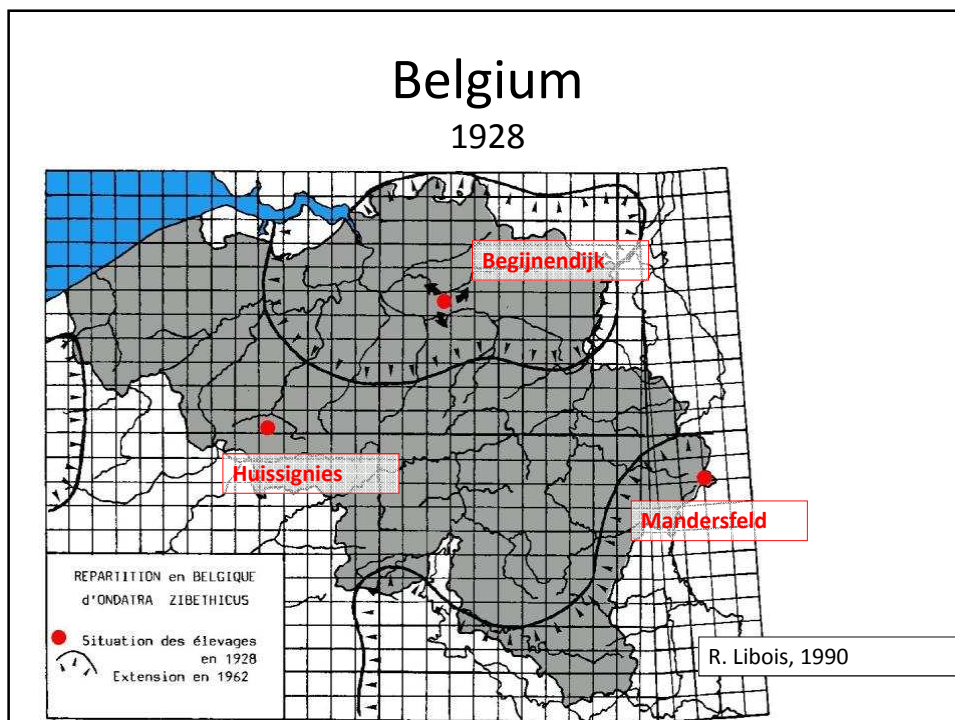
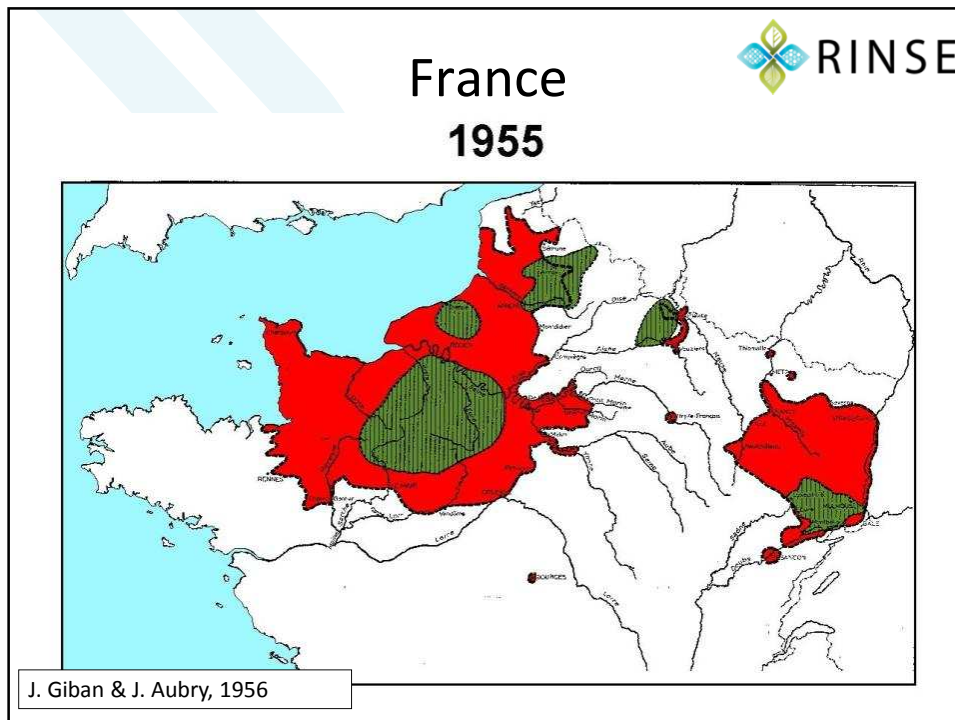
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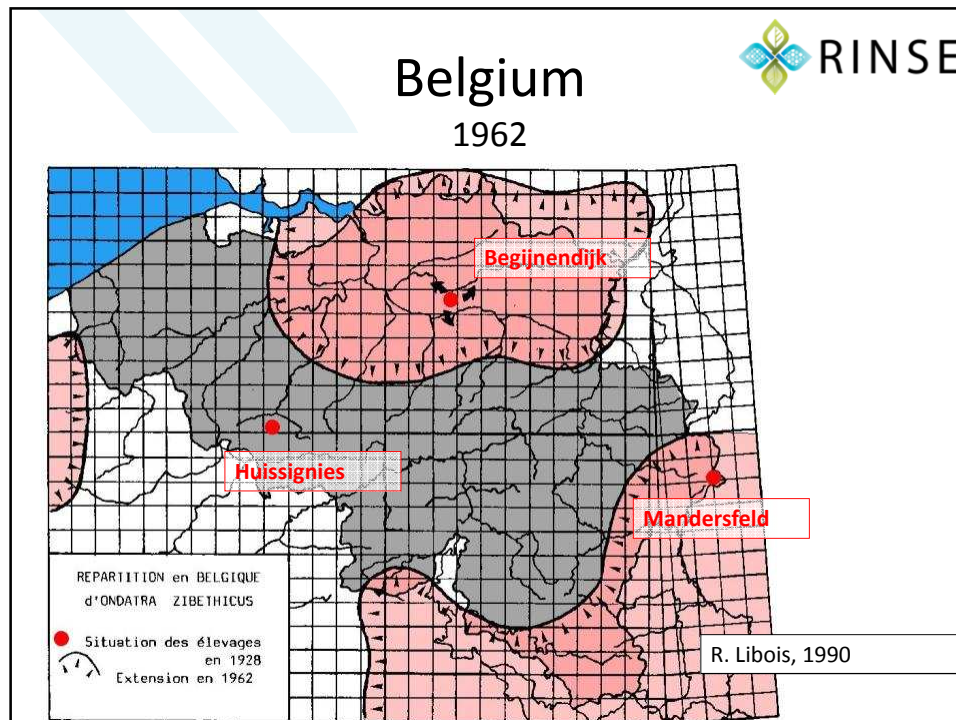
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RINSE

1928 : Introduction of the muskrat in Belgium

1930 : licence of the fur farms withdrawn.



1938 : Royal Decree made :

- muskrat eradication compulsory for all landowners and –users
- holding, transport and breeding punishable

Till 1950 : trappers rewarded : bounty system + pelt

Start of the federal organised control in Belgium :

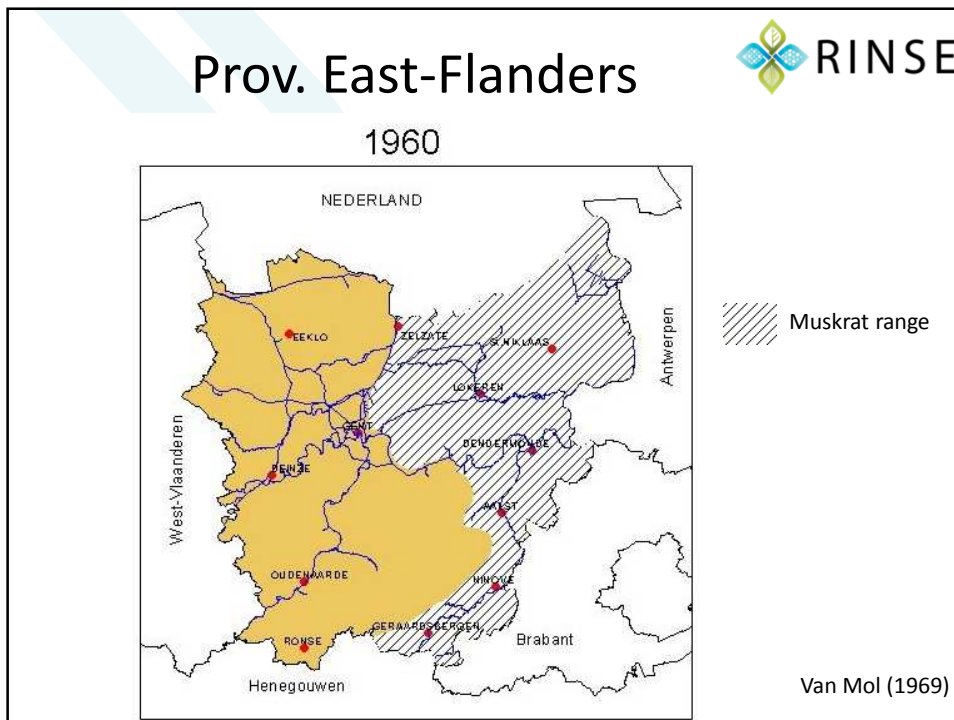
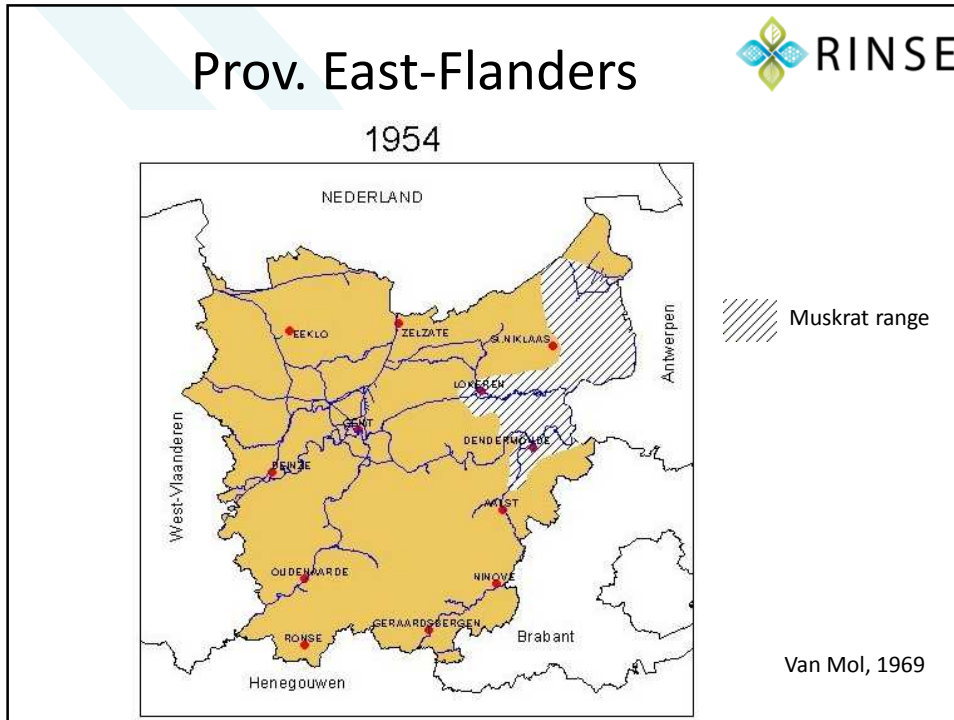
1952 : 2 tr **1953** : 8 tr **1963** : 20 tr **1974** : 57 tr ...

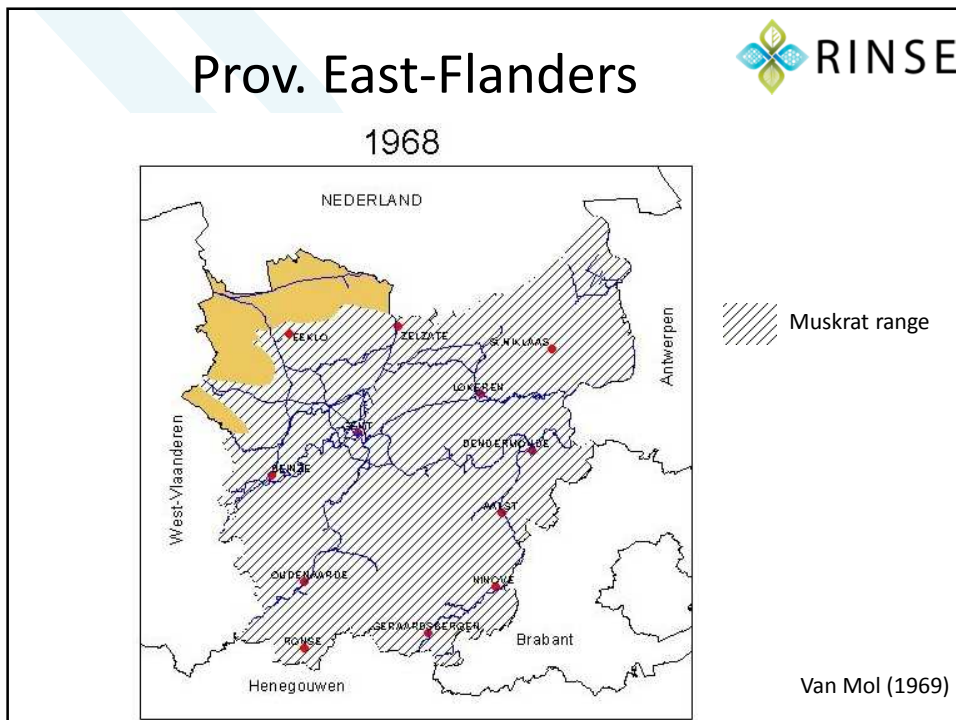
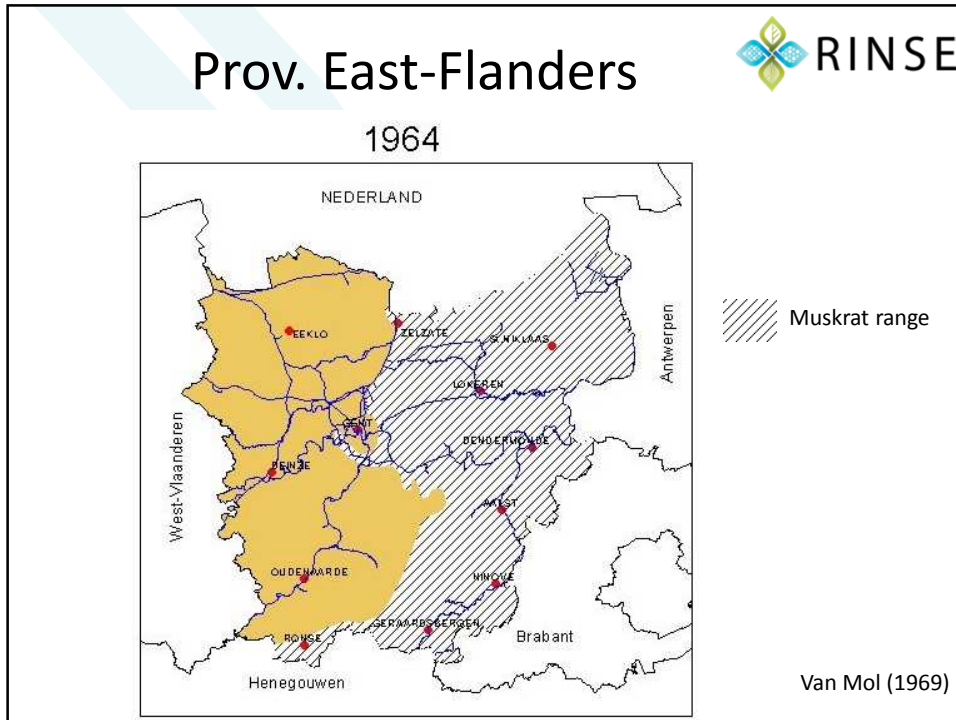


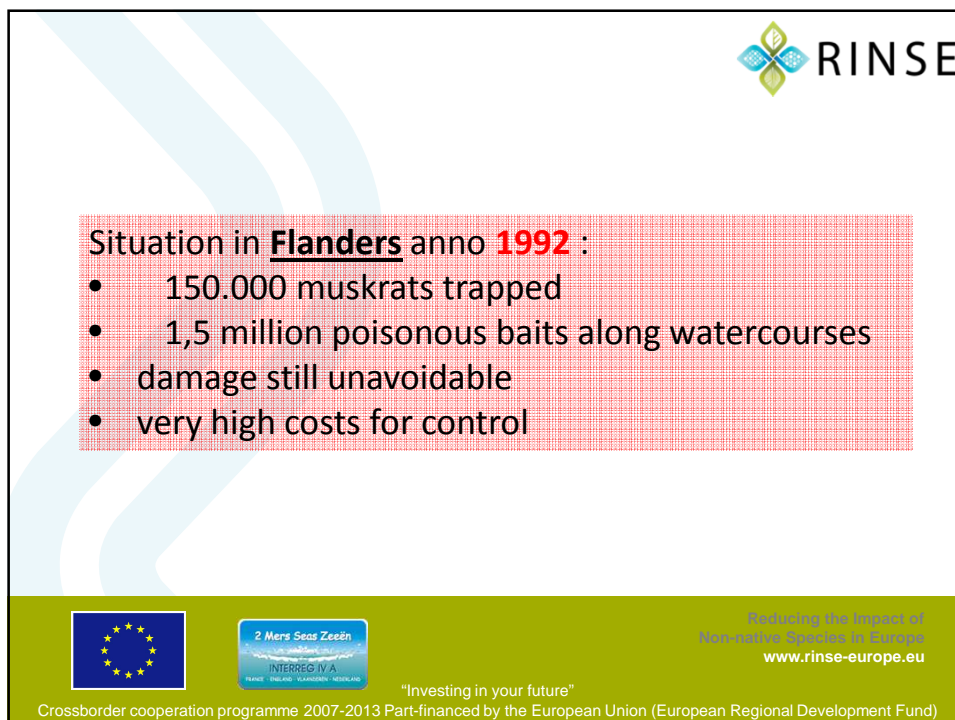
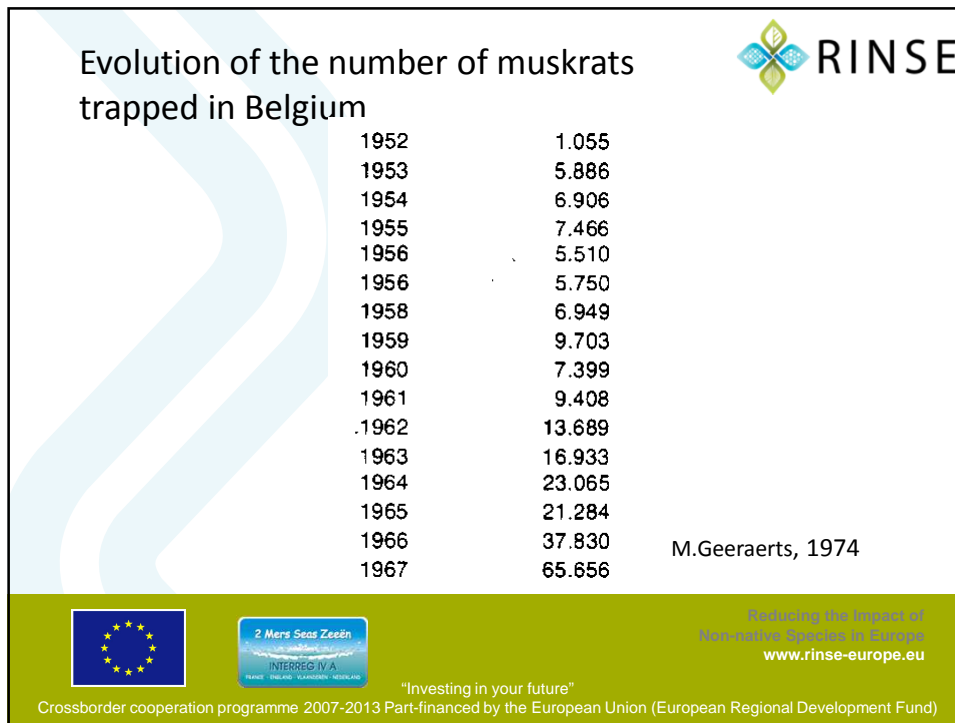
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Muskrat eradication compulsory for all landowners and –users =>

- Every landowner or –user is responsible for the control actions on “his” land or along “his” watercourses
- Many stakeholders = a fragmentation of competences : farmers – local authorities – Flemish Government
- Many “interpretations” and cost-benefit analyses



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Crop damage



- Good visibility
- Further increase damage avoided when muskrats are culled
- Sometimes recovery of the crop

⇒ *damage management*

⇒ *financial assessment*

⇒ *curative approach – seasonal campaigns*



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Excavation damage



- often very difficult to evaluate
 - does not stop when the rats are killed (leaching ...)
 - muskrat take old dens in use again(cumulative)
 - one den on the wrong place can cause great harm (subsidence, flooding,)
- ⇒ *also a risk assessment*
- ⇒ *and preventive approach – continuous control*



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Ecological damage



- long-term impact on biodiversity
- browsing, predation and competition
- difficult to evaluate on a local scale
- impact on abiotic environment

⇒ *also a risk assessment*

⇒ *preventive*

⇒ *cost-benefit analysis very difficult*



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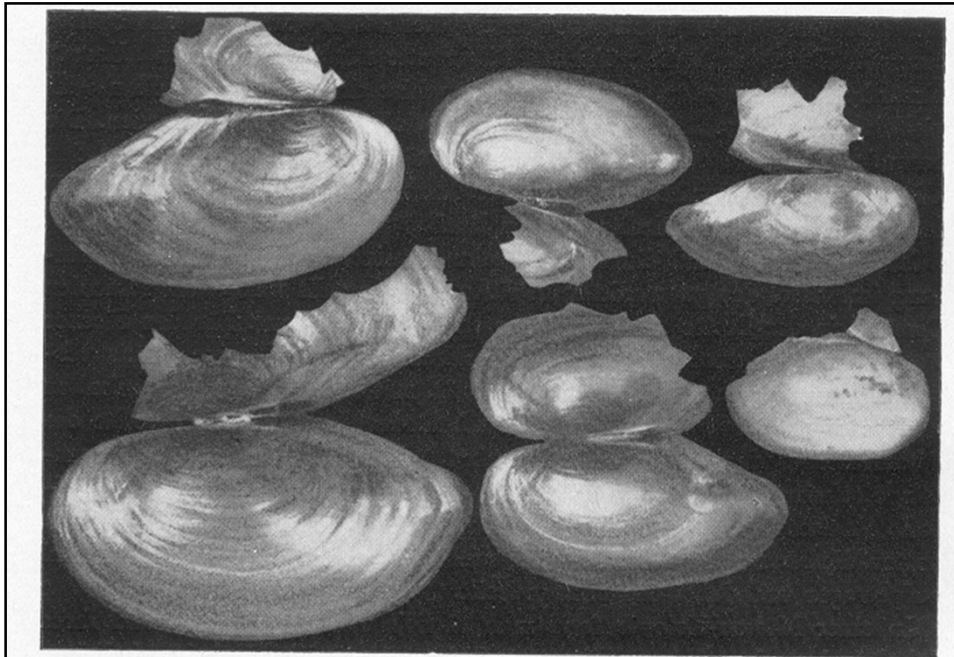


Abb. 19 a. Durch Bisamratte benagte Muschelschalen. M. Hoffman, 1958





Till 1994 : No clear common objectives

- no shared understanding to assess the population in the field
- damage is evaluated in very different ways
- very different demands on the implementation of the control
 - No common strategy
 - No common method
 - No common technique



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Our new approach : one general objective

Reduce the population density in Flanders so that


- no one suffers unacceptable damage
- the control results are sustainable
- the control can be done cost-effectively
- collateral damage is minimized





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1. Study of ecology and population ecology of the muskrat ✓
2. Analyses of the muskrats trapped in control actions
3. Objectifying population estimates using trap sessions
4. Evaluation of the techniques used so far
5. Evaluation of the methods used so far
6. Evaluation of the strategy followed so far
7. Implementation of a new action plans & evaluation methods



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- Reproductie of Voortplanting
 - voortplantingsperiode van begin maart tot eind augustus
 - polygamie komt voor
 - resorpties
 - 1 tot 11 jongen per worp, meestal 3 tot 8, gemiddeld 6,7
 - draagtijd 25-28 dagen
 - geboortegewicht 20-25 gr
 - na 3 weken verlaten jongen het nest (140 gr) en kunnen dan ook zwemmen
 - post-partum zwangerschappen
 - bij ons tot 3 worpen per jaar (afhankelijk van breedteligging - 4 worpen mogelijk ?)
 - zelden voortplanting in geboortejahr (< 6%)
 - dieren slechts zelden ouder dan 2 jaar



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- **Samengevat :**



voorbeeld : gegevens uit ecologische studie uitgevoerd door R.Moens (1978)

1 jaar
van 1000 nestverlatende jonge vrouwtjes
4% heeft 1 worp - 4.8 j / w

2 jaar
33 % overleeft tot voortplantingsperiode
4% plant zich niet voort
heeft 1 worp - 6.8 j / w
67% heeft 2 worpen - 6.6 j / w
26% heeft 3 worpen - 6.0 j / w

3 jaar
6% overleeft tot voortplantingsperiode


3%



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- **In dit voorbeeld :**

- 1000 nestverlatende vrouwtjes produceerden tot 3210 tot 3716 jongen (waarvan 1800 vouwtjes)

1 jaar : 5%

2 jaar : 85%

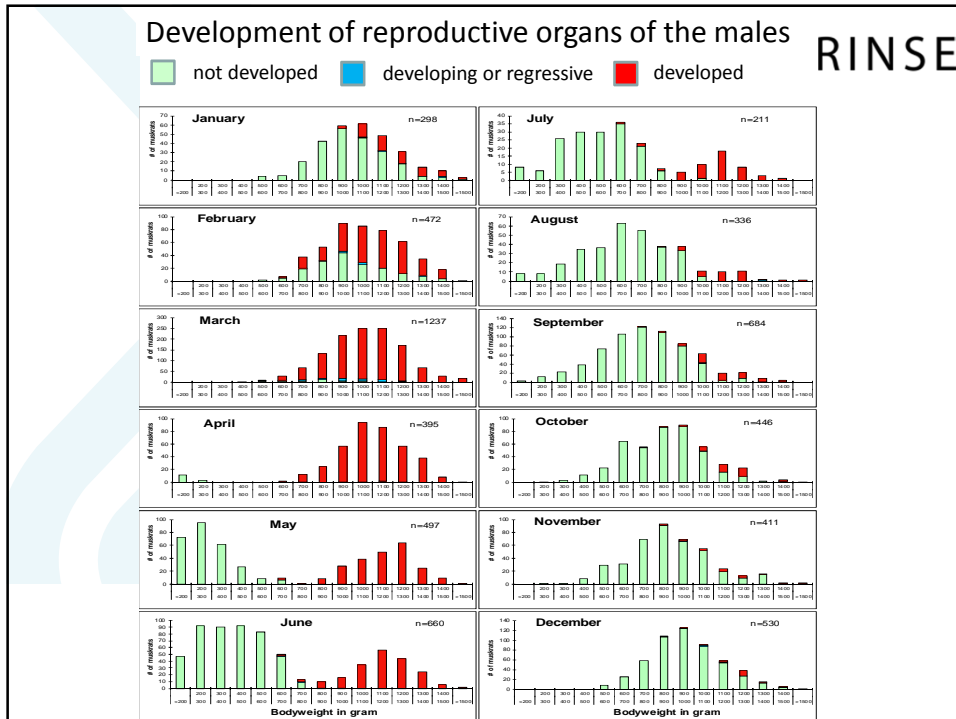
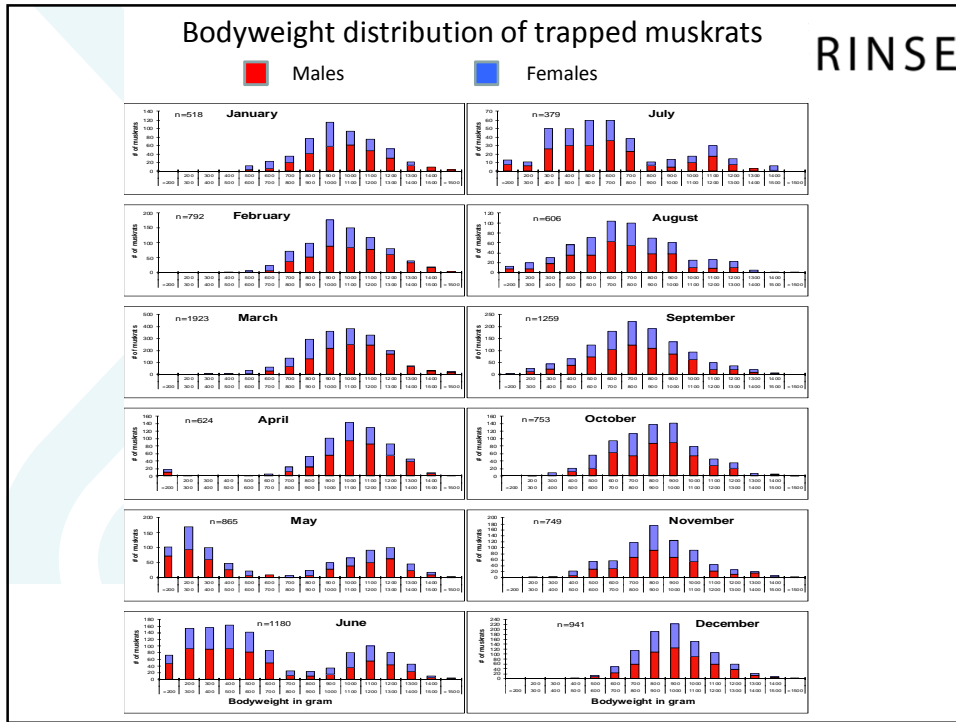
3 jaar : 10%

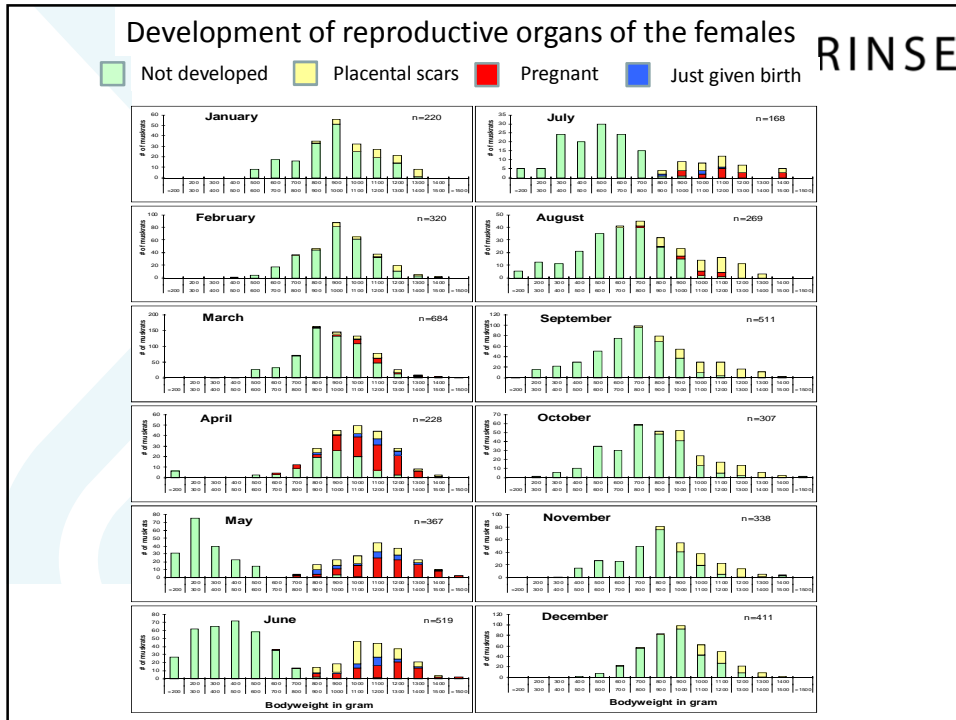


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Control techniques

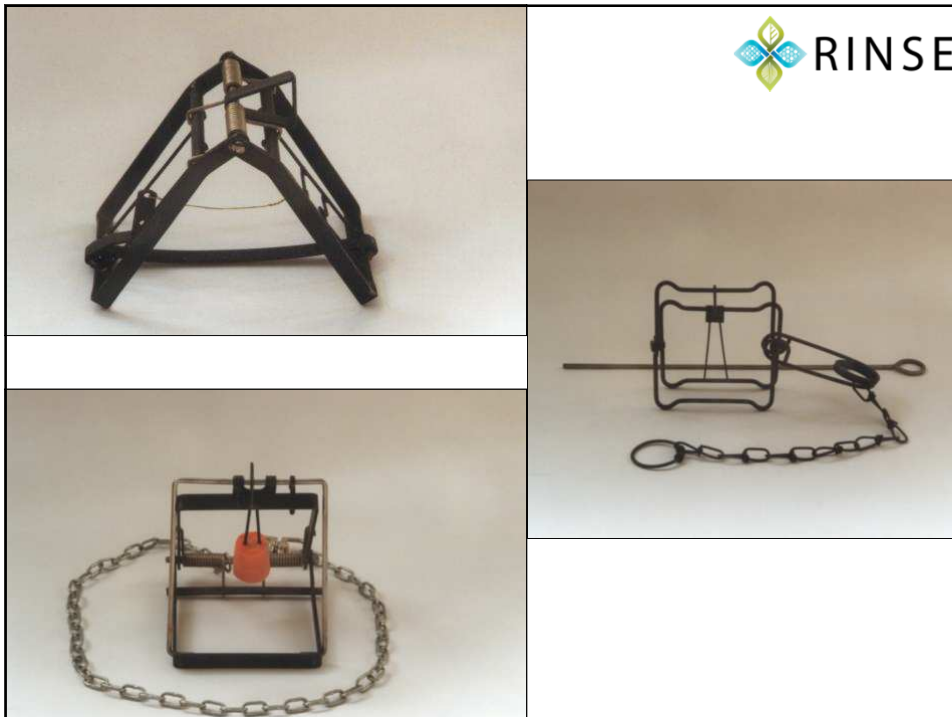
- Mechanical : spring traps and fykes > 150.000 rats/year
- Chemical : poisonous baits > 1,5 million baits/year



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Control methods

- Passive control
- Active control



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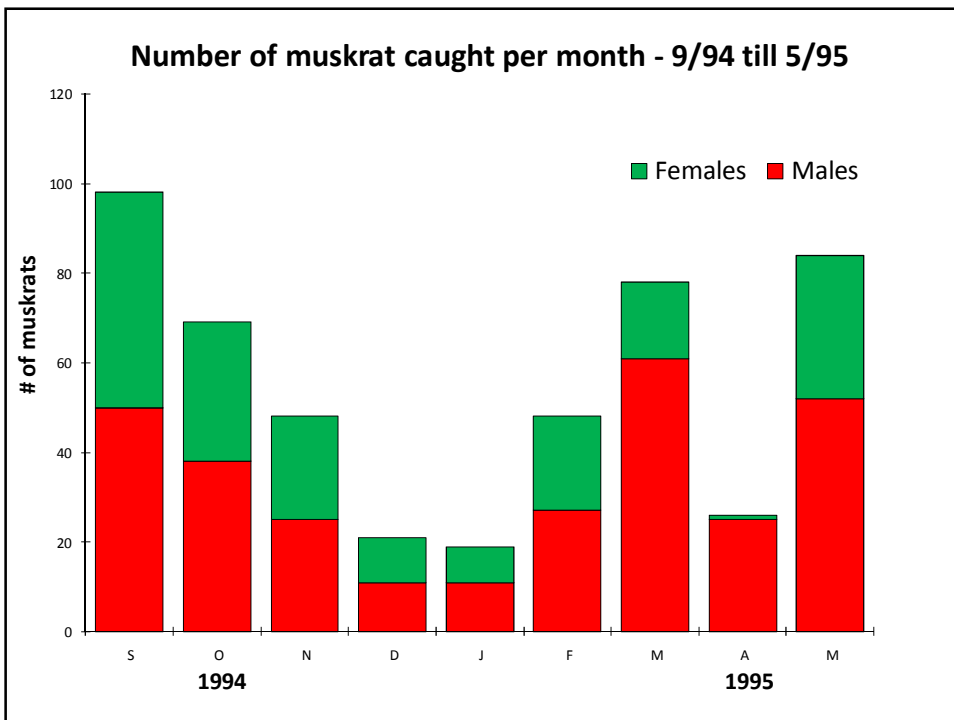
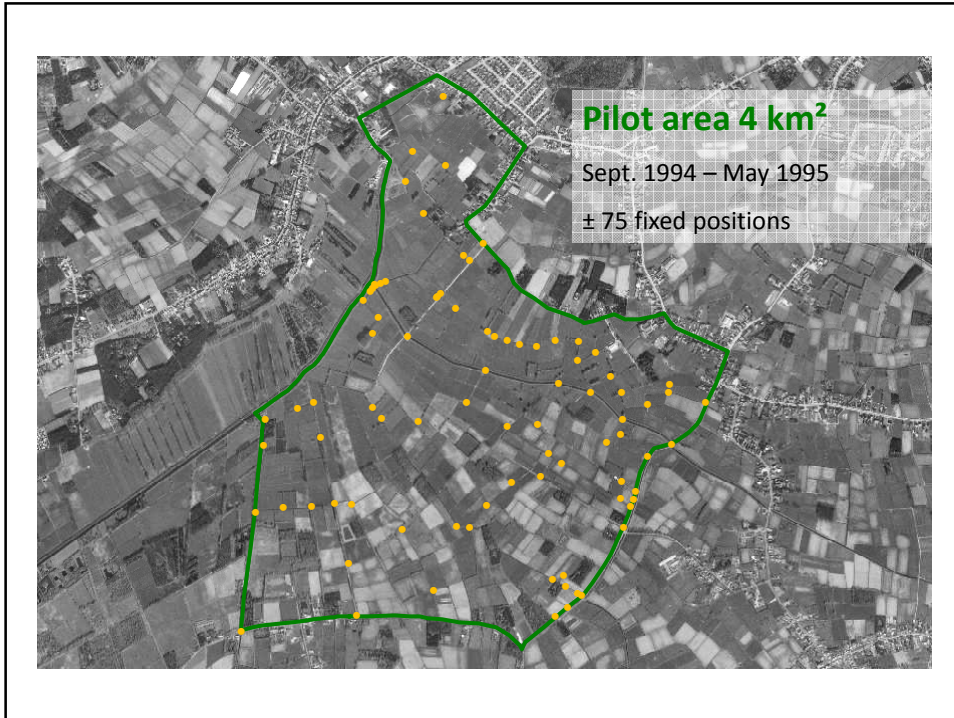




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Control strategies :

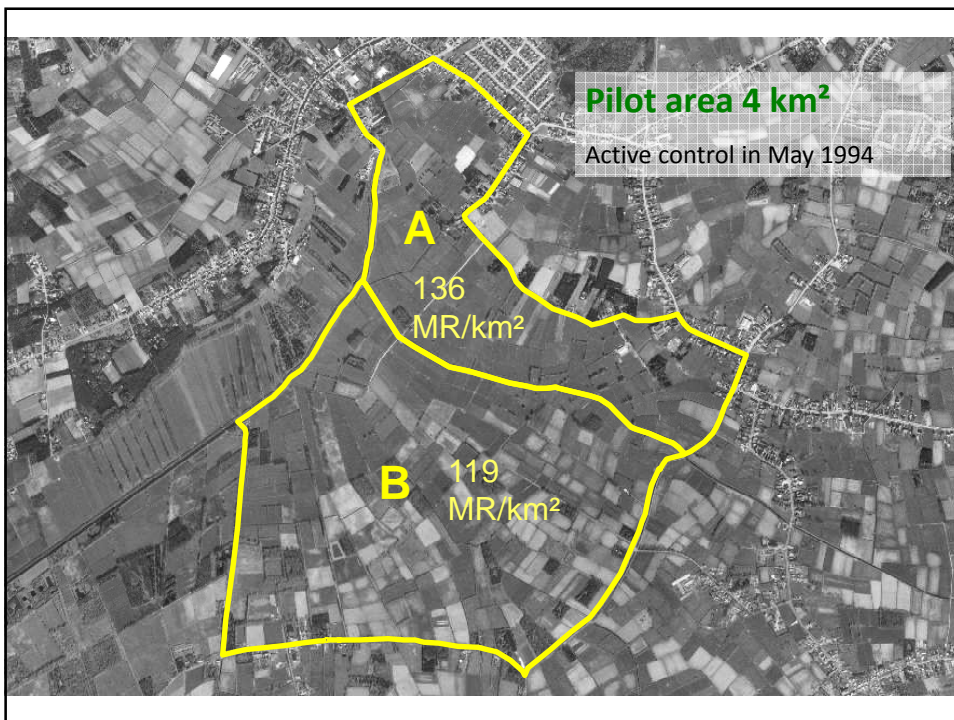
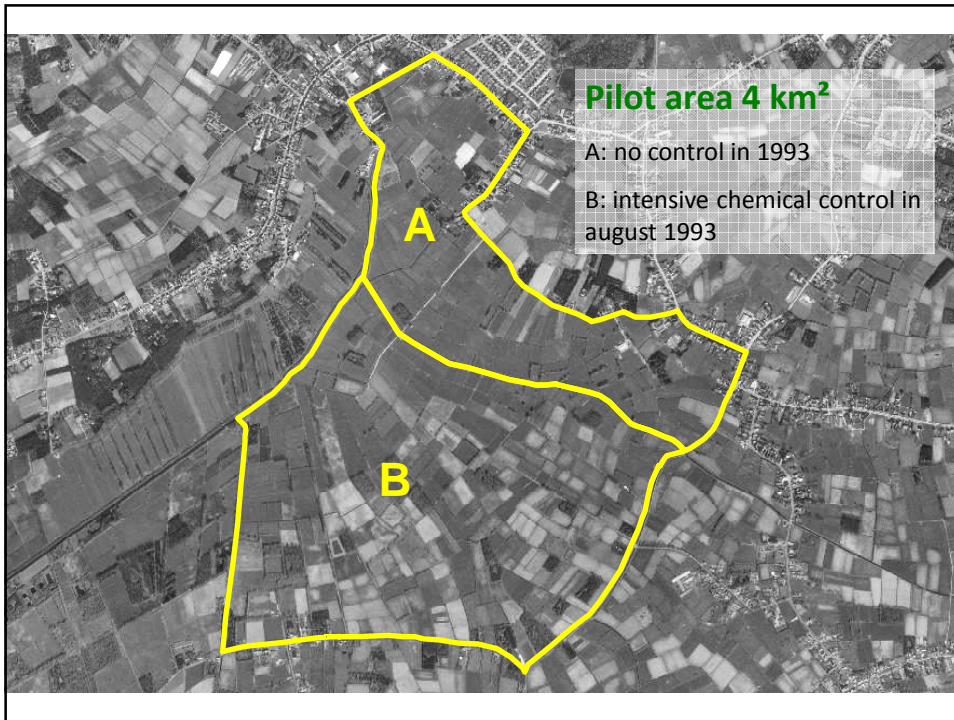
- Differentiated control
- Area-wide control

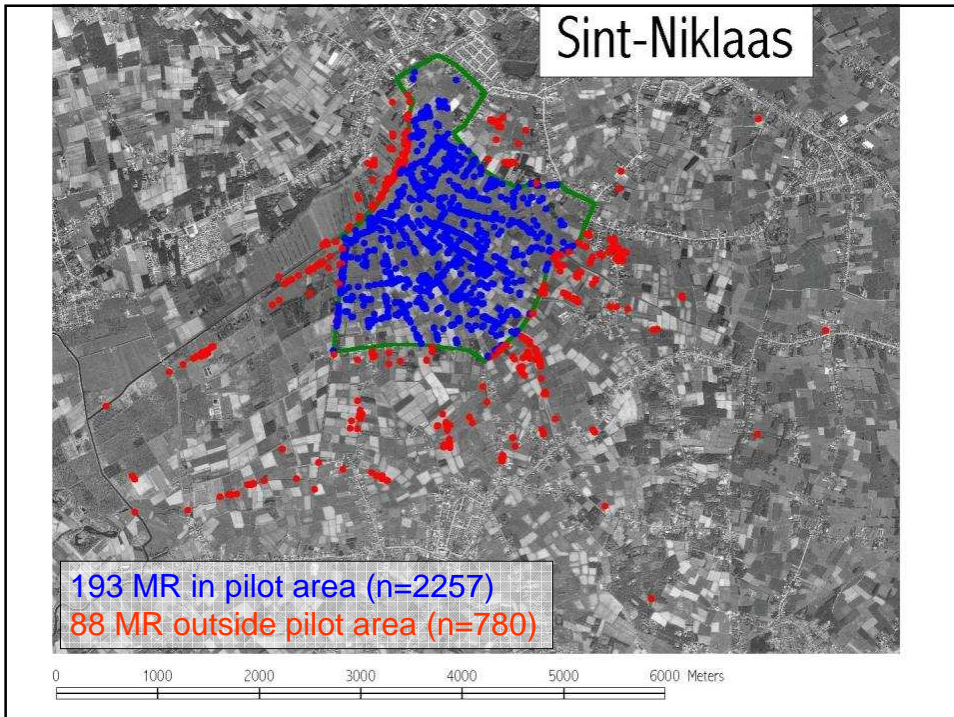


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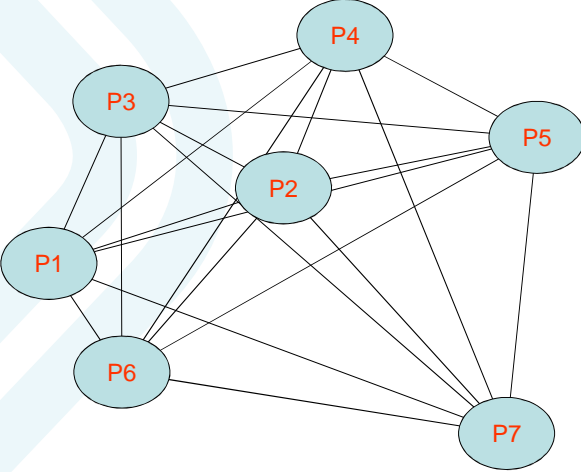



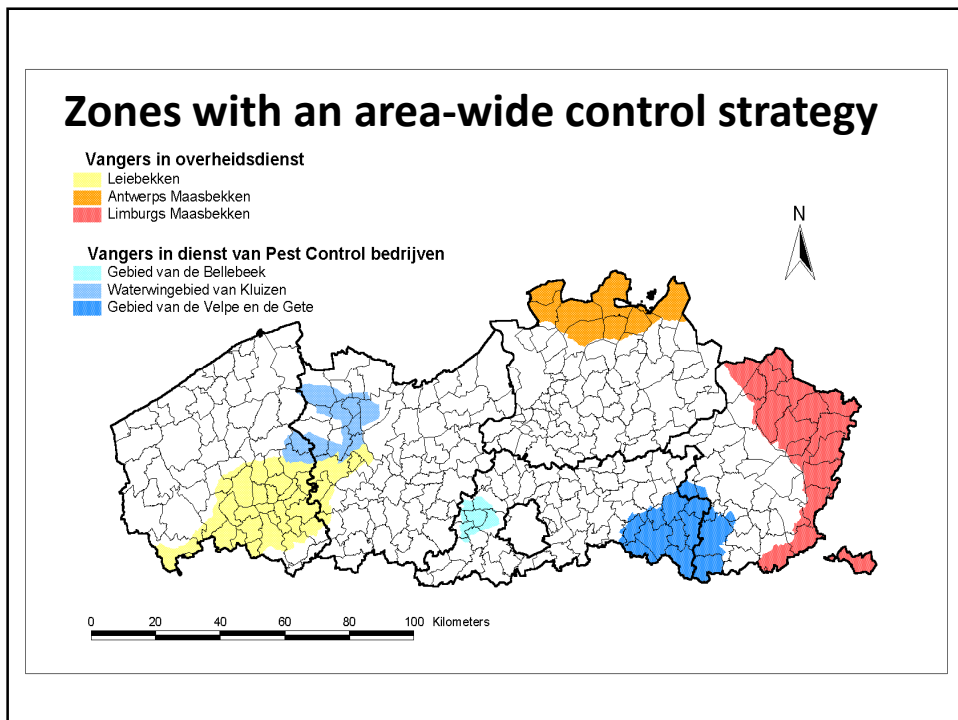


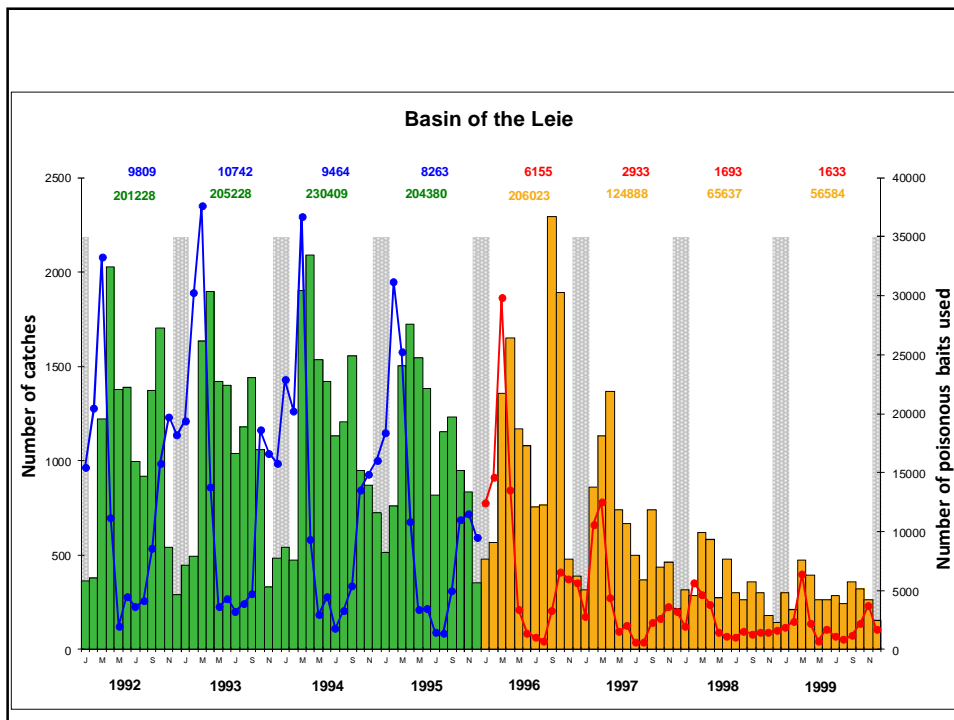
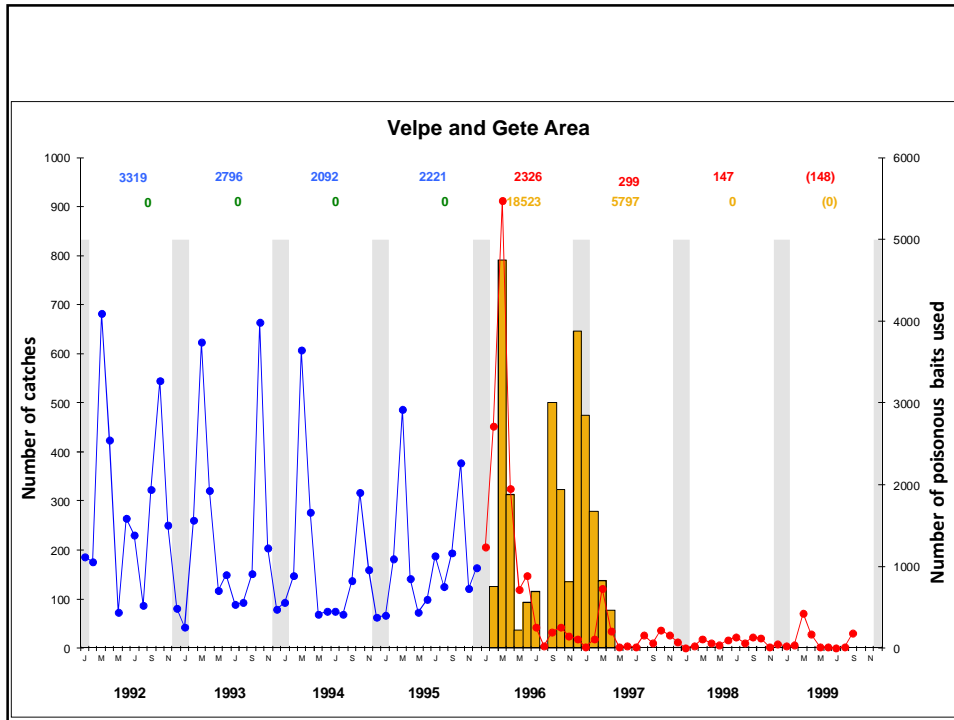
Diagram illustrating the RINSE network structure, showing seven nodes (P1 through P7) interconnected by lines, representing a network of participants or projects.



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Our action plan :


- Mechanical (know what you are doing)
- Area-wide
- Active > passive - high density first
- Always bring density as low as possible
- Evaluation : measure the rest population using active trap sessions on 1km² at the worst place in the area
- Goal : no place in area with > muskrats than standard:
 - 5 MR/km² : Jan – Mar
 - 10 MR/km² : Apr – Jun
 - 15 MR/km² : Jul – Sep
 - 10 MR/km² : Oct - Dec



vildaphoto



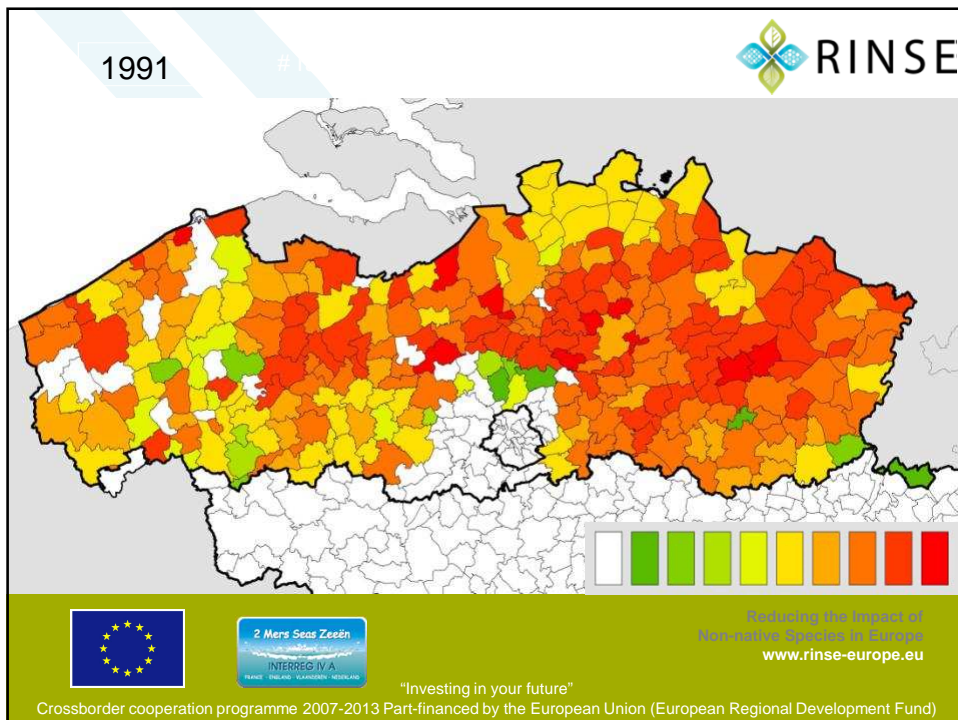
**Results : evolution of
the muskrat population
in Flanders since 1991**

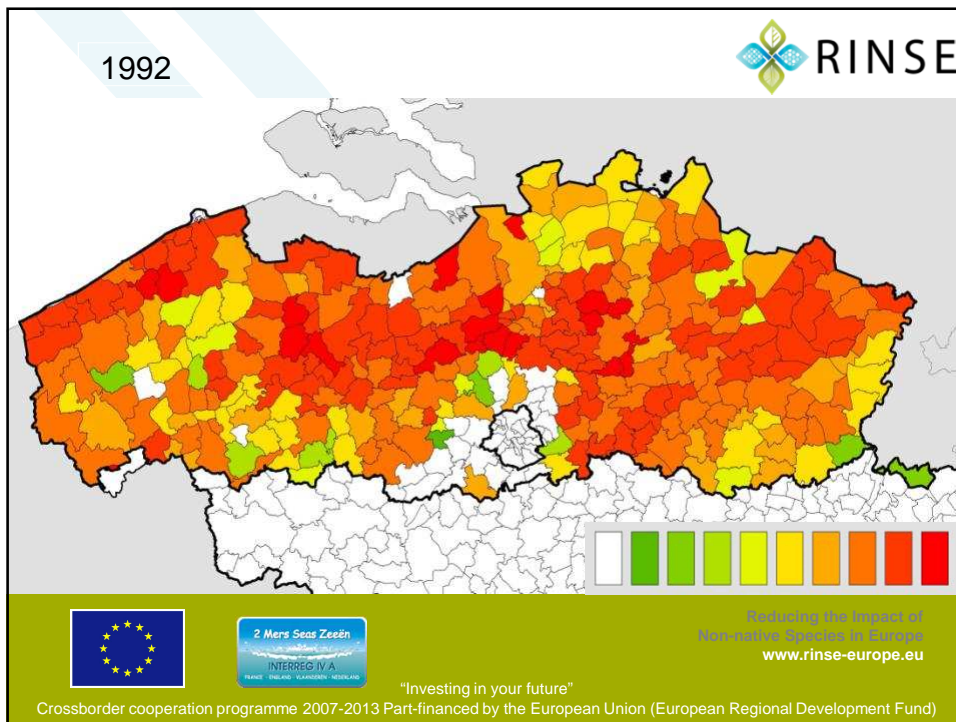
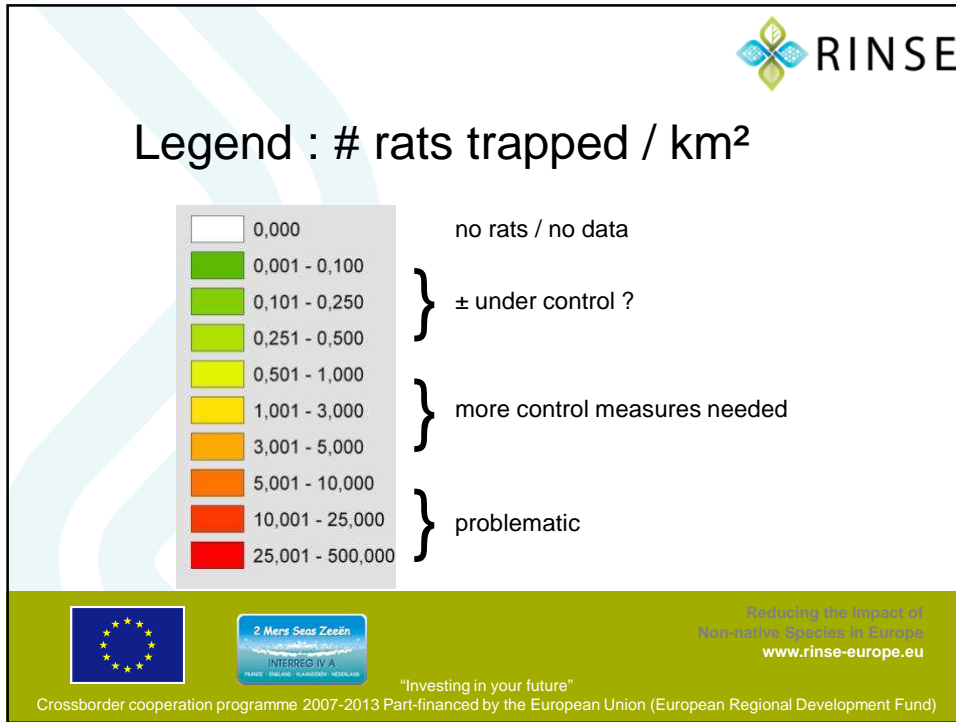


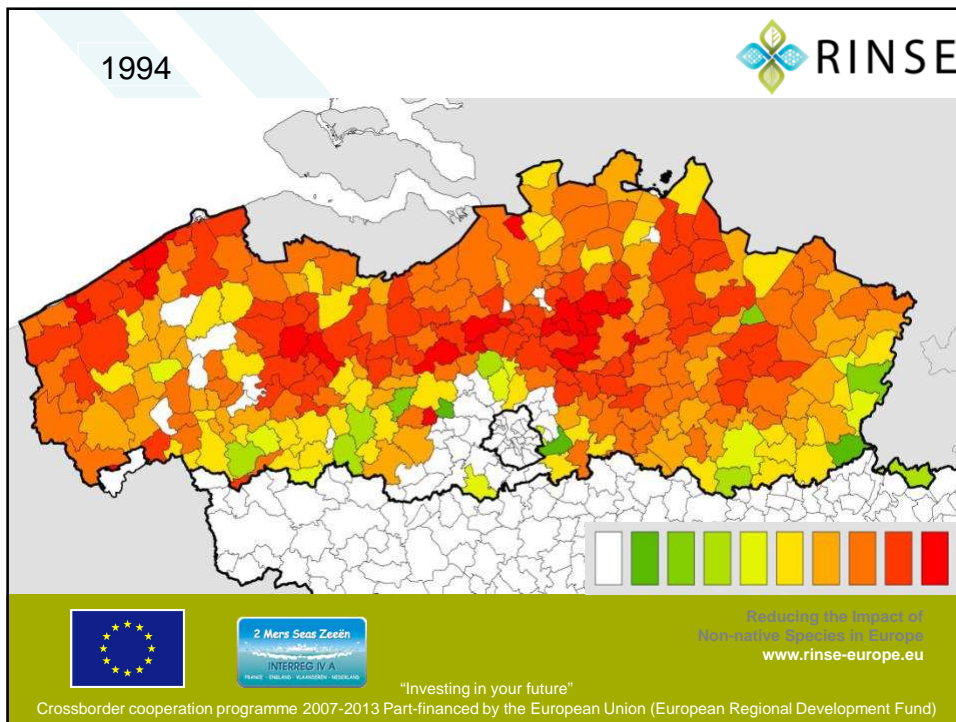
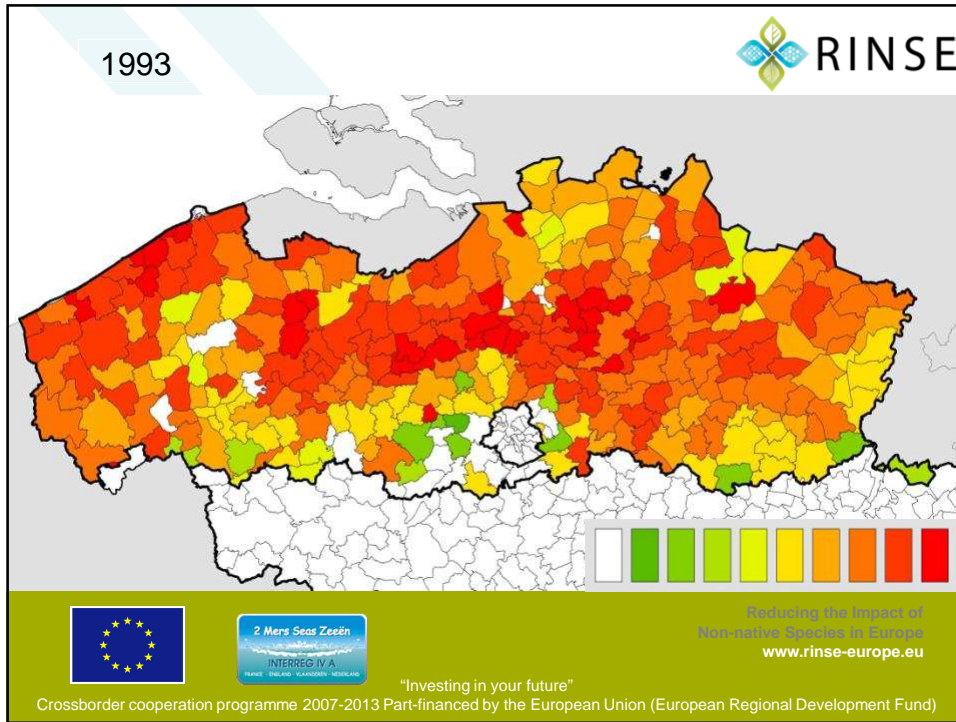
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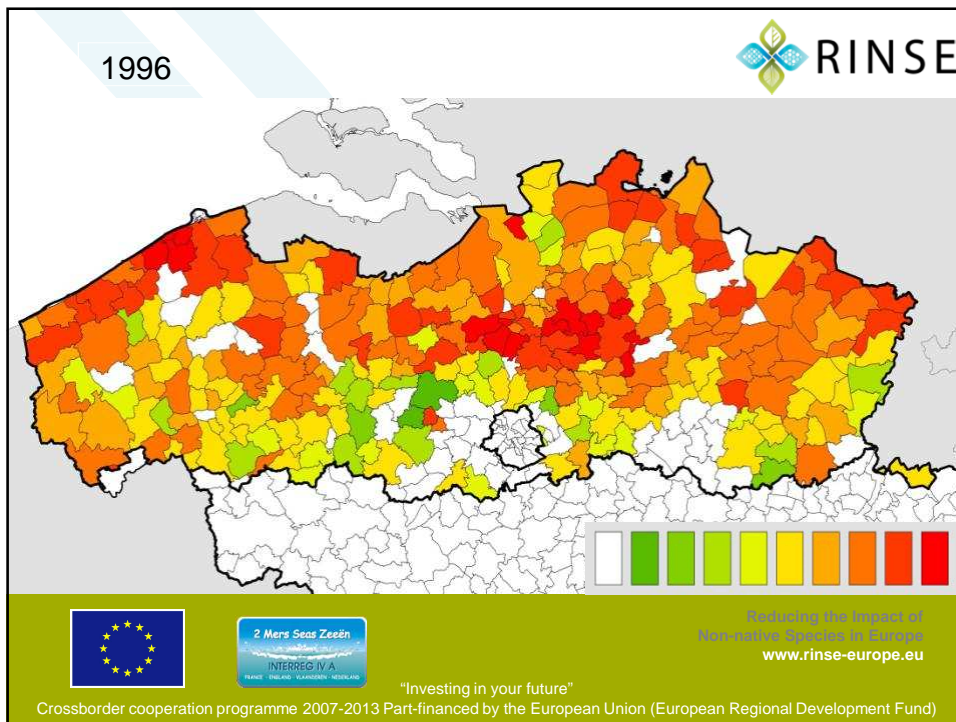
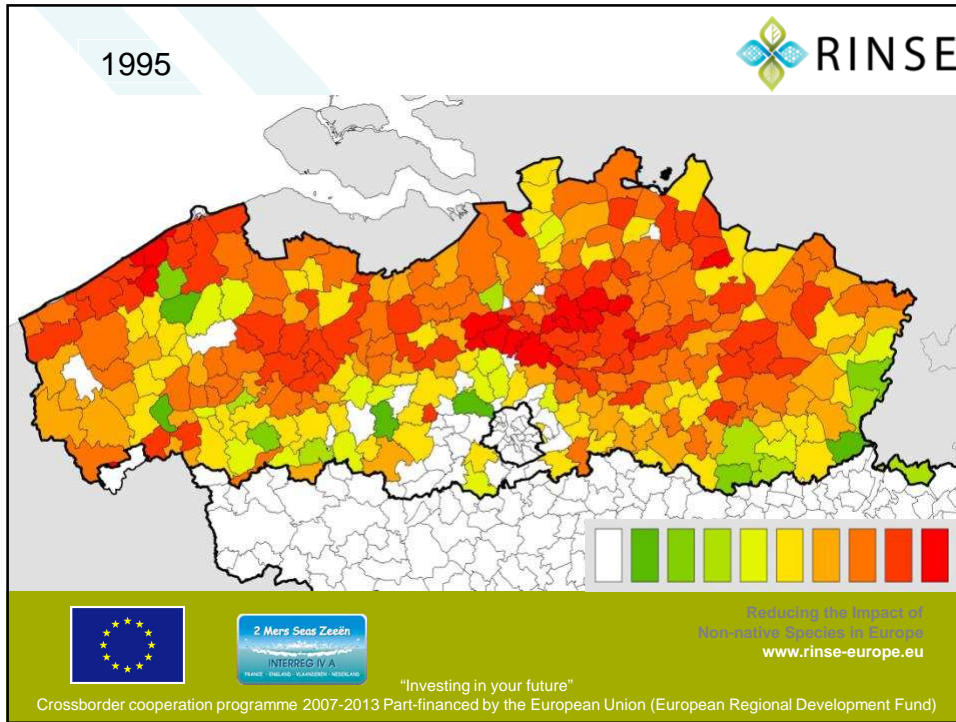
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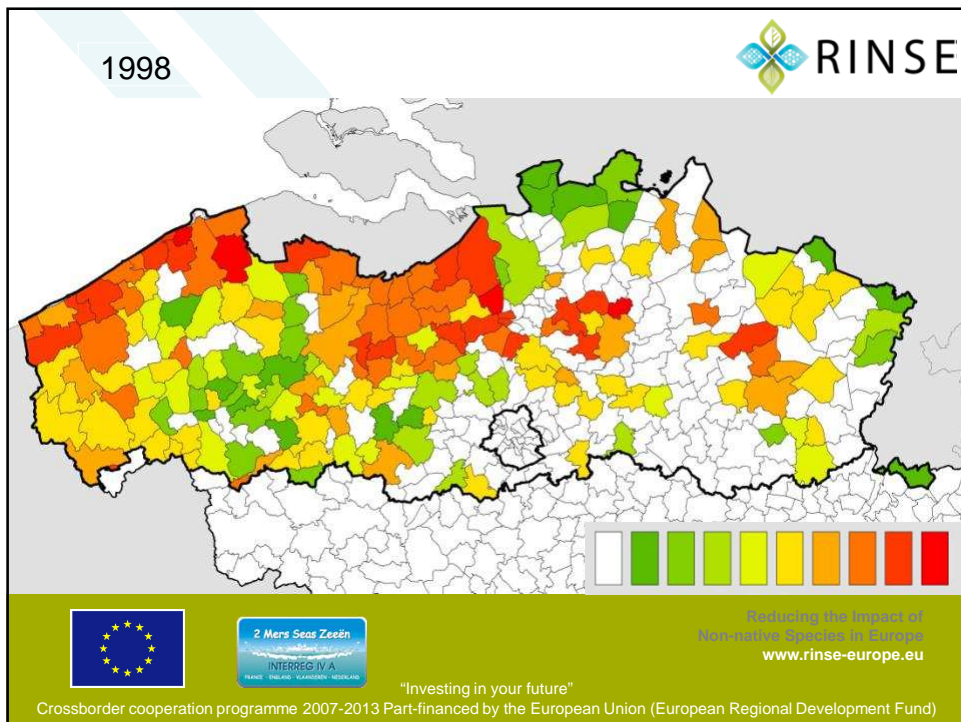
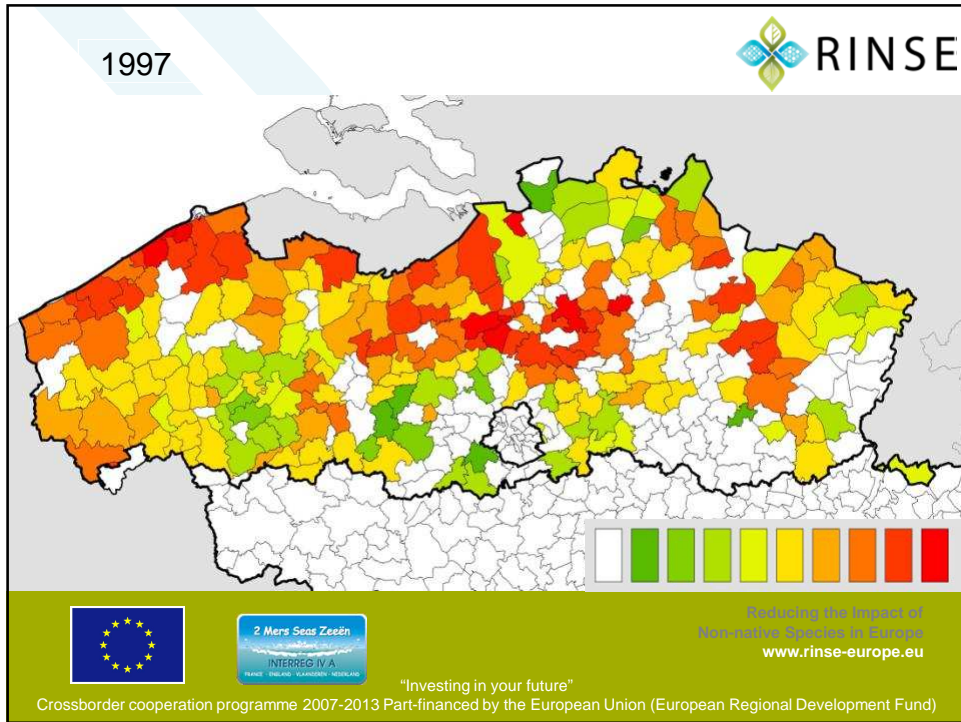
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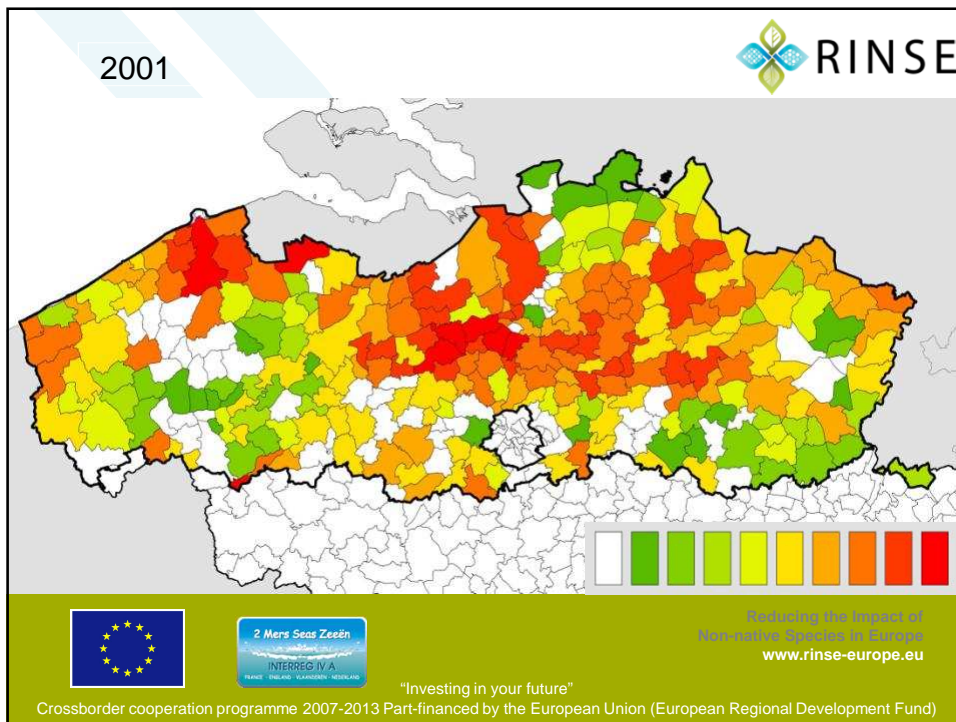
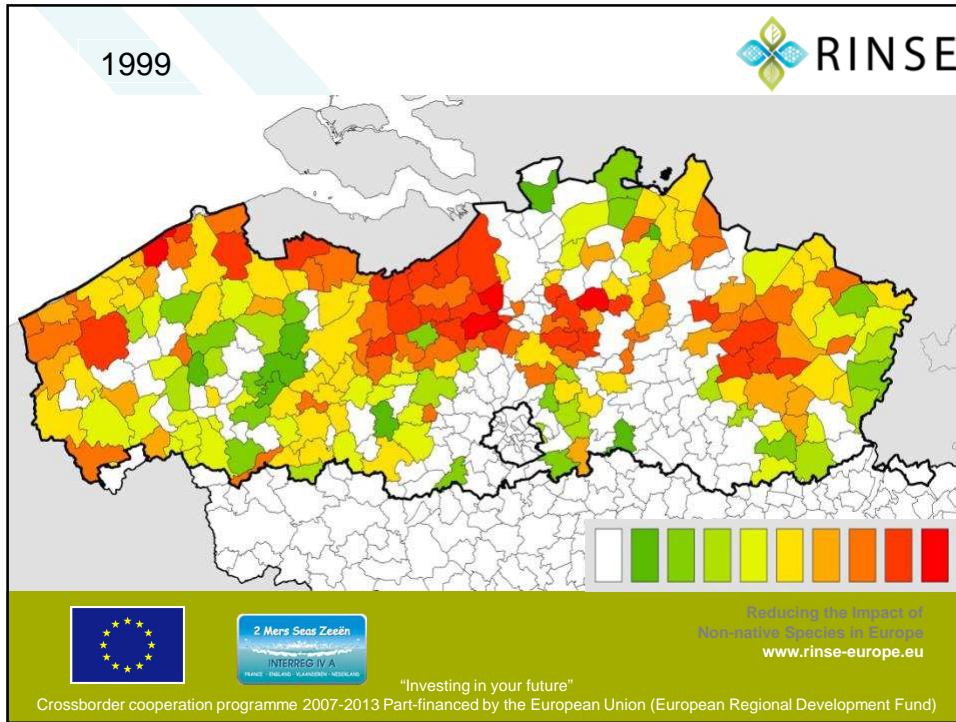


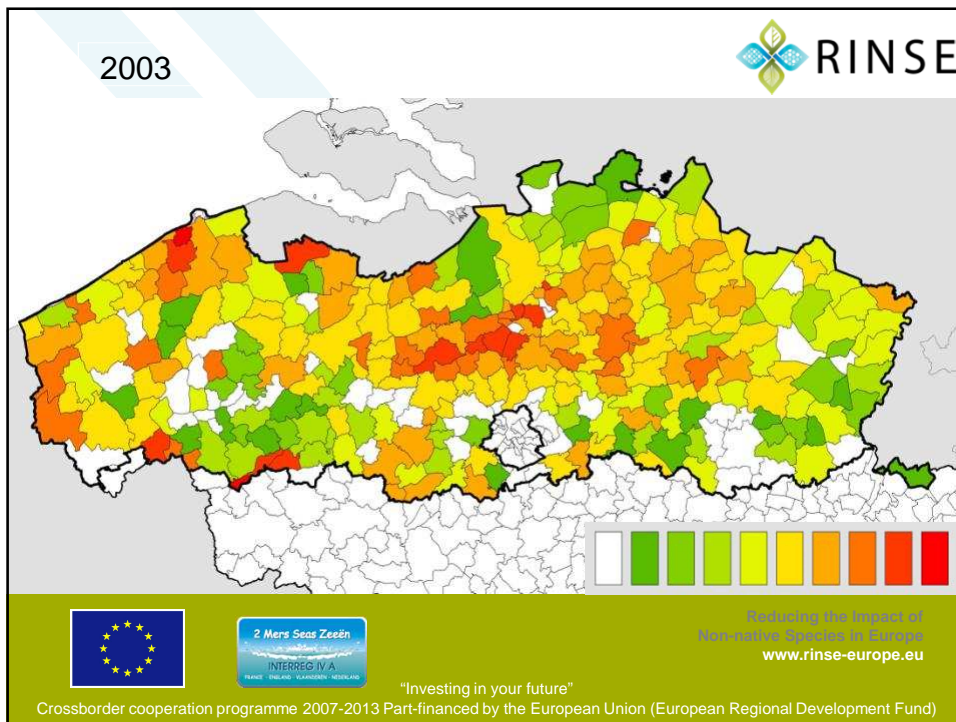
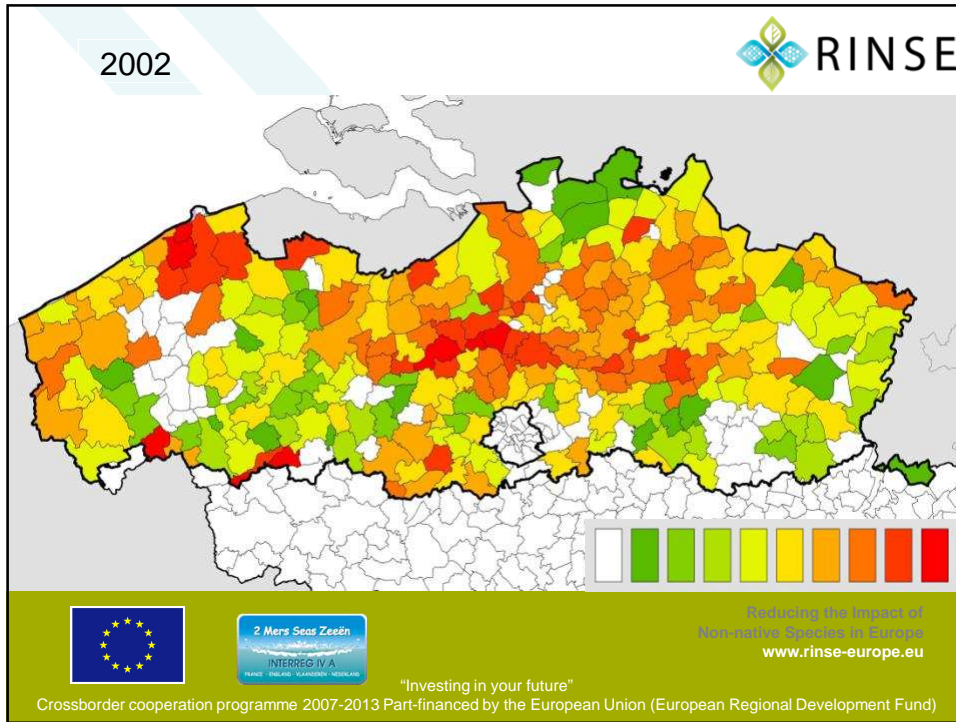


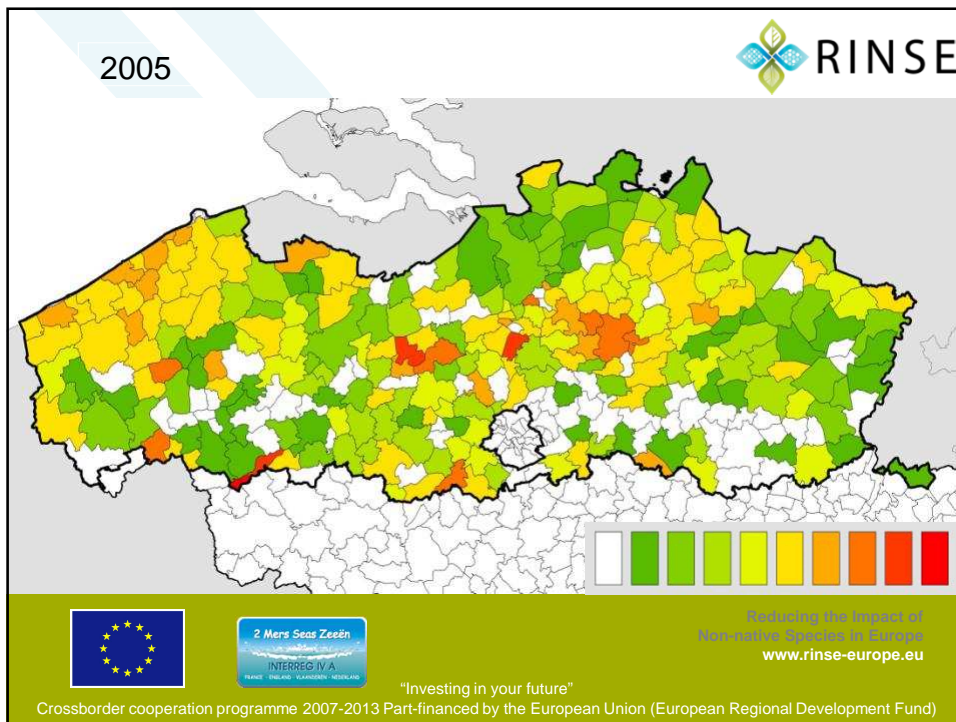
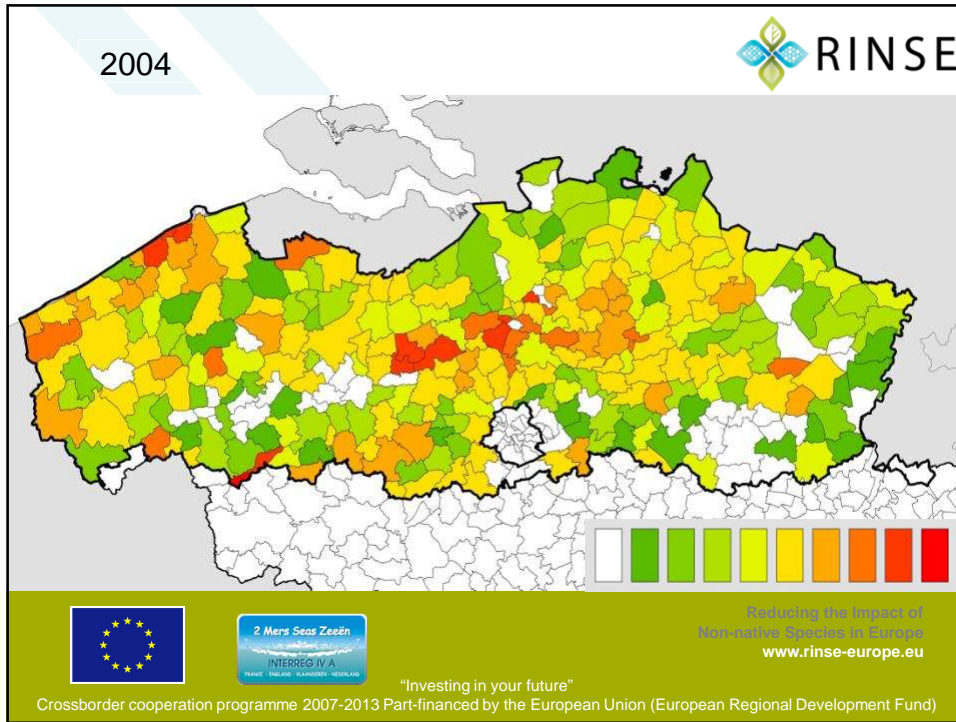


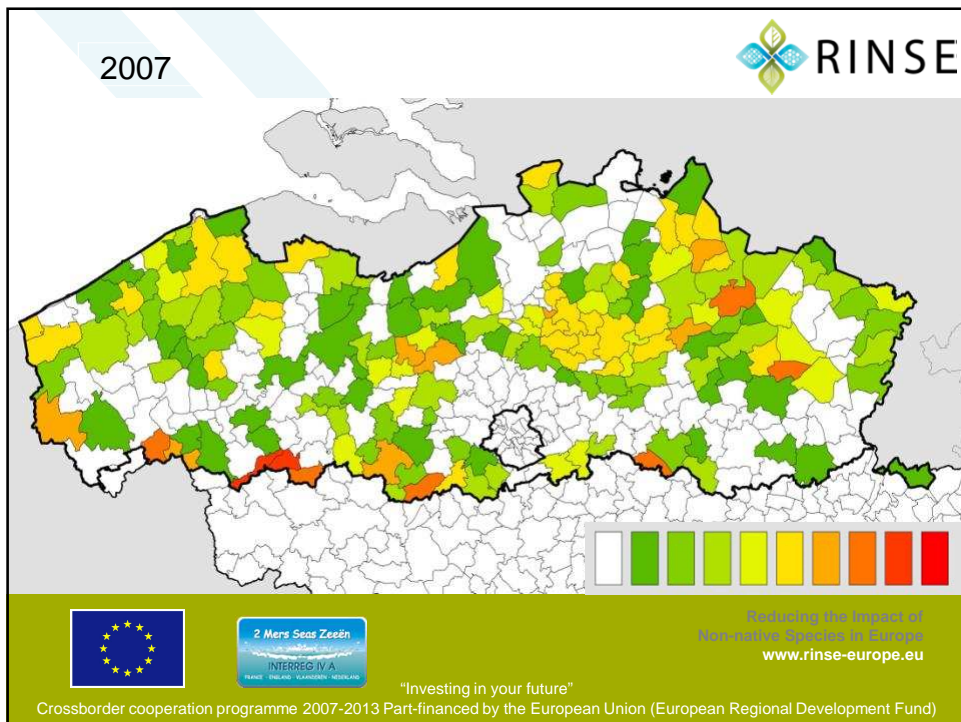
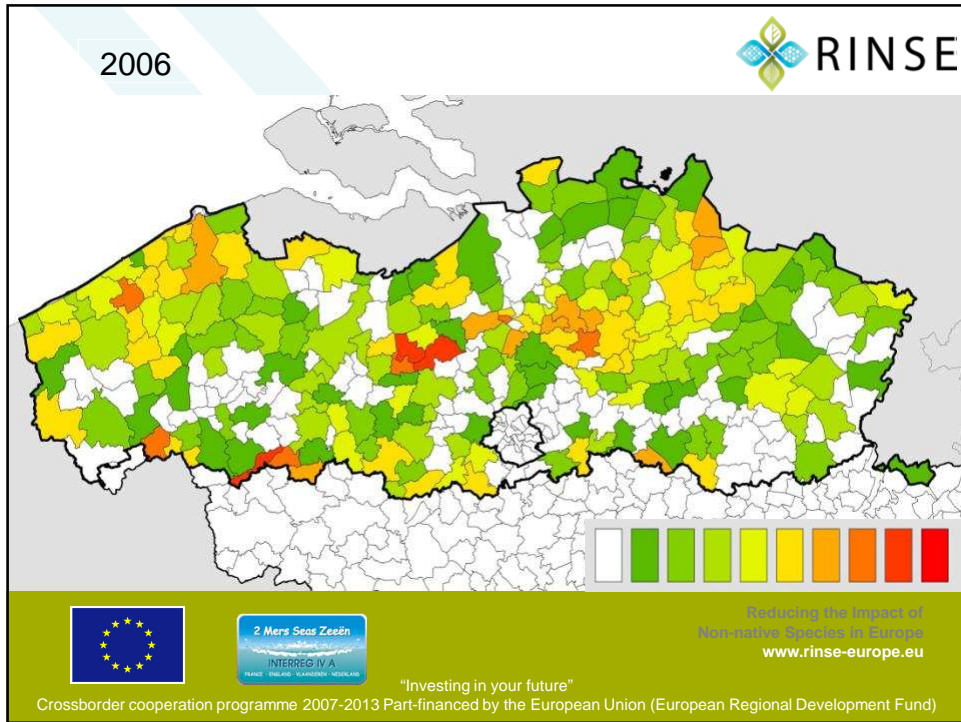


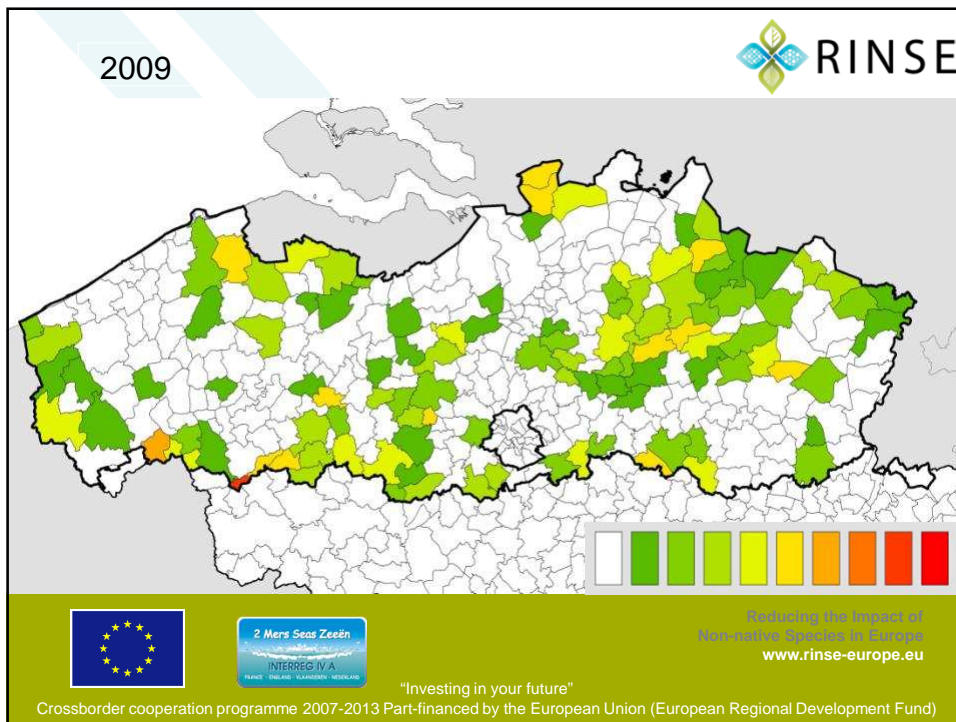
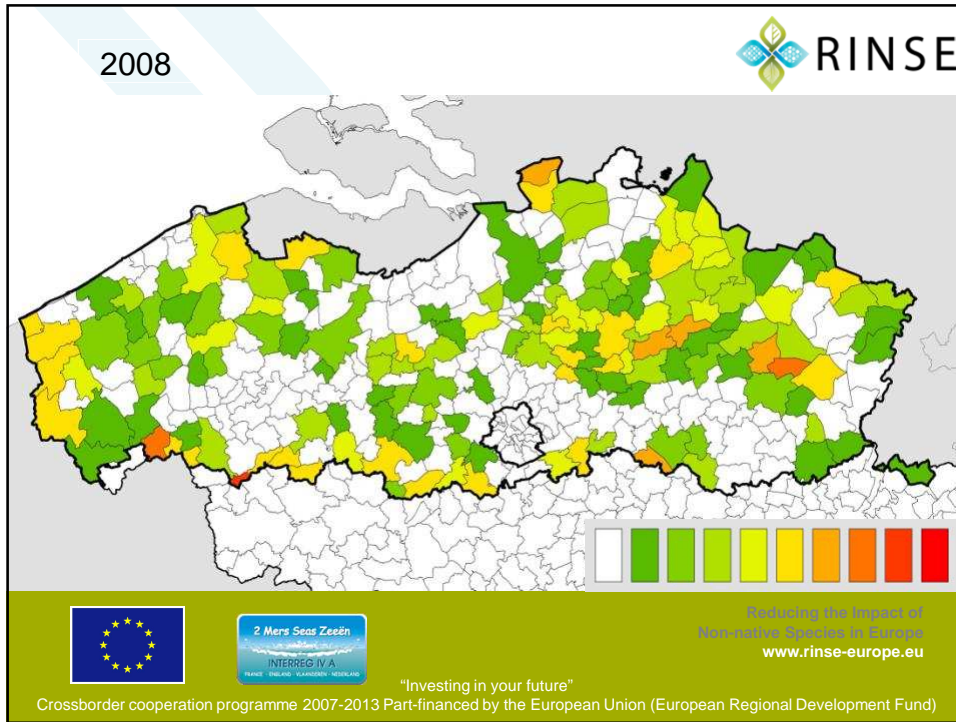


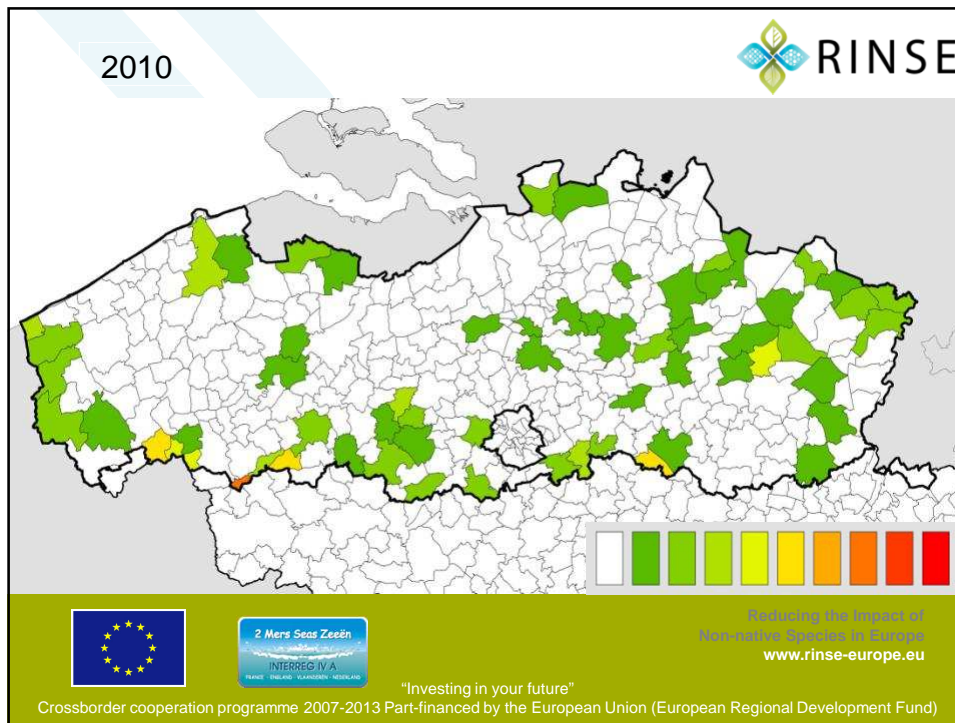












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- Only a few places can still be found each year where the standard is exceeded.
- Hereby there will always be less rats found, then the double of the number of standard target.

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2 Mers Seas Zeeën
INTERREG IVA
Ireland, England, Vlaanderen, Nederland

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