Is Dutch Nature policy cost-effective?

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Wettelijke Onderzoekstaken Natuur & Milieu

Overview presentation

- Introduction
  - Policy question
  - Research question
- Methodology: Phase 1
  - Approach
  - Results
- Methodology: Phase 2
  - Approach
  - Results
- Concluding remarks
- Questions

Introduction

- Dutch Nature Policy: Cost-effective?
  - Realization of nature will mean possible high cost on planning and development of new areas; moreover, Improving environmental conditions often is necessary
  - An ‘ex ante’ review on cost-effectiveness is needed
- Research question:
  - Methodology to assess both costs and effects of nature policy options

Methodology Phase 1 (1)

- Definition
  - Ex-ante evaluation
  - Terrestrial part of National Ecological Network (EHS).
  - Cost-effectiveness of areas
  - Preconditions
    - realization of (total area)
    - requirements for sustainable conservation of intended ‘conservation objective classification’ (natuurdoeltypen) met
      - exception: spatial requirements

Methodology Phase 1 (2)

- Use of Data on…
  - intended ‘conservation objective classification’ (natuurdoelenkaart)
  - Status nature area (agriculture, nature to be transformed, nature according to plan)
  - Environmental condition (desiccation, nitrogen deposition)
  - Require sustainable conservation condition
  - Measures, costs, expenditures
- Result: database (GIS)

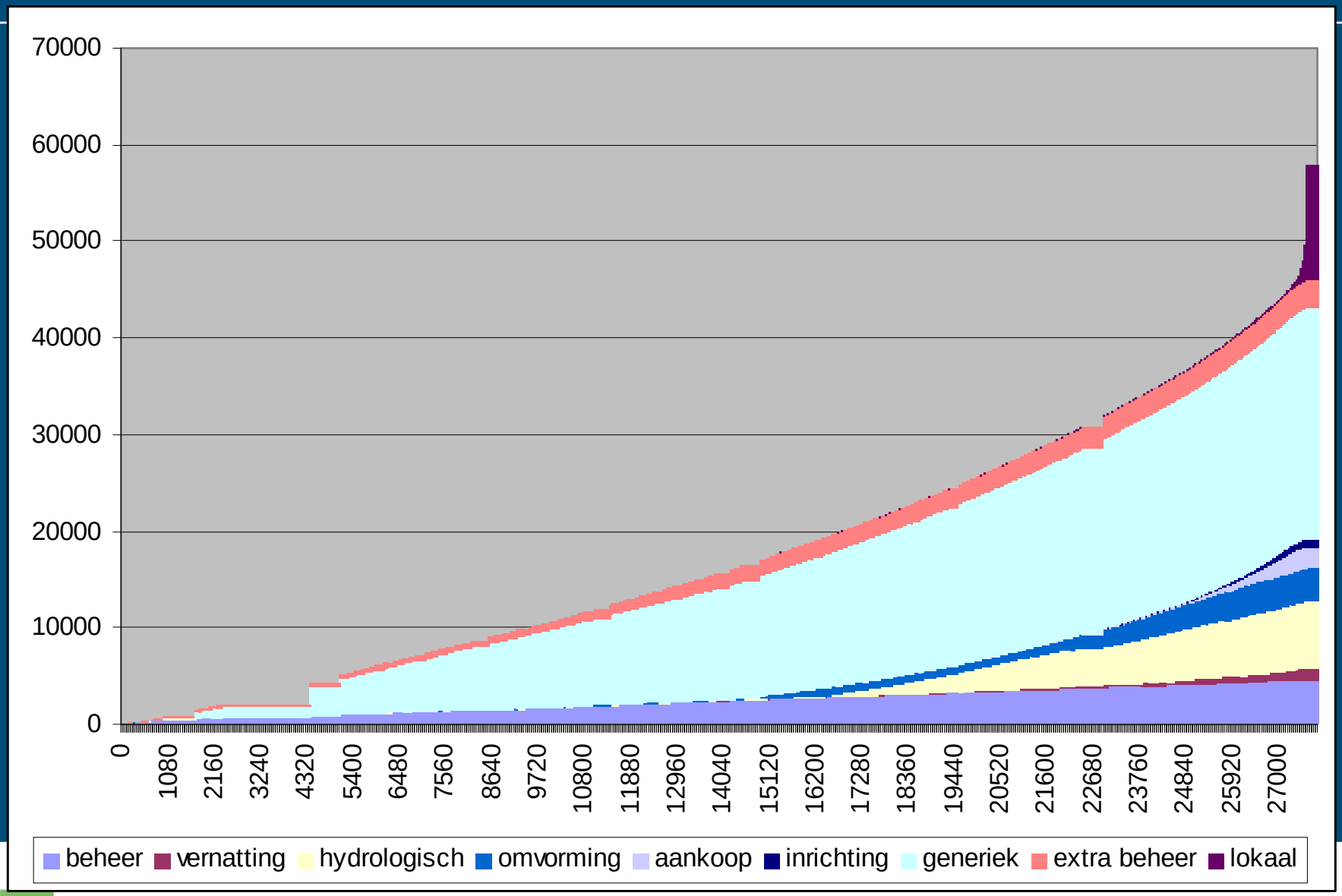
Methodology Phase 1 (3)

- Measures
  - Purchase
  - Transformation
  - Management: regular, restoration
  - Anti - Desiccation
  - Over fertilization
    - EU policy (NEC, CAFE)
    - Local policy (translocation farms, air filters)

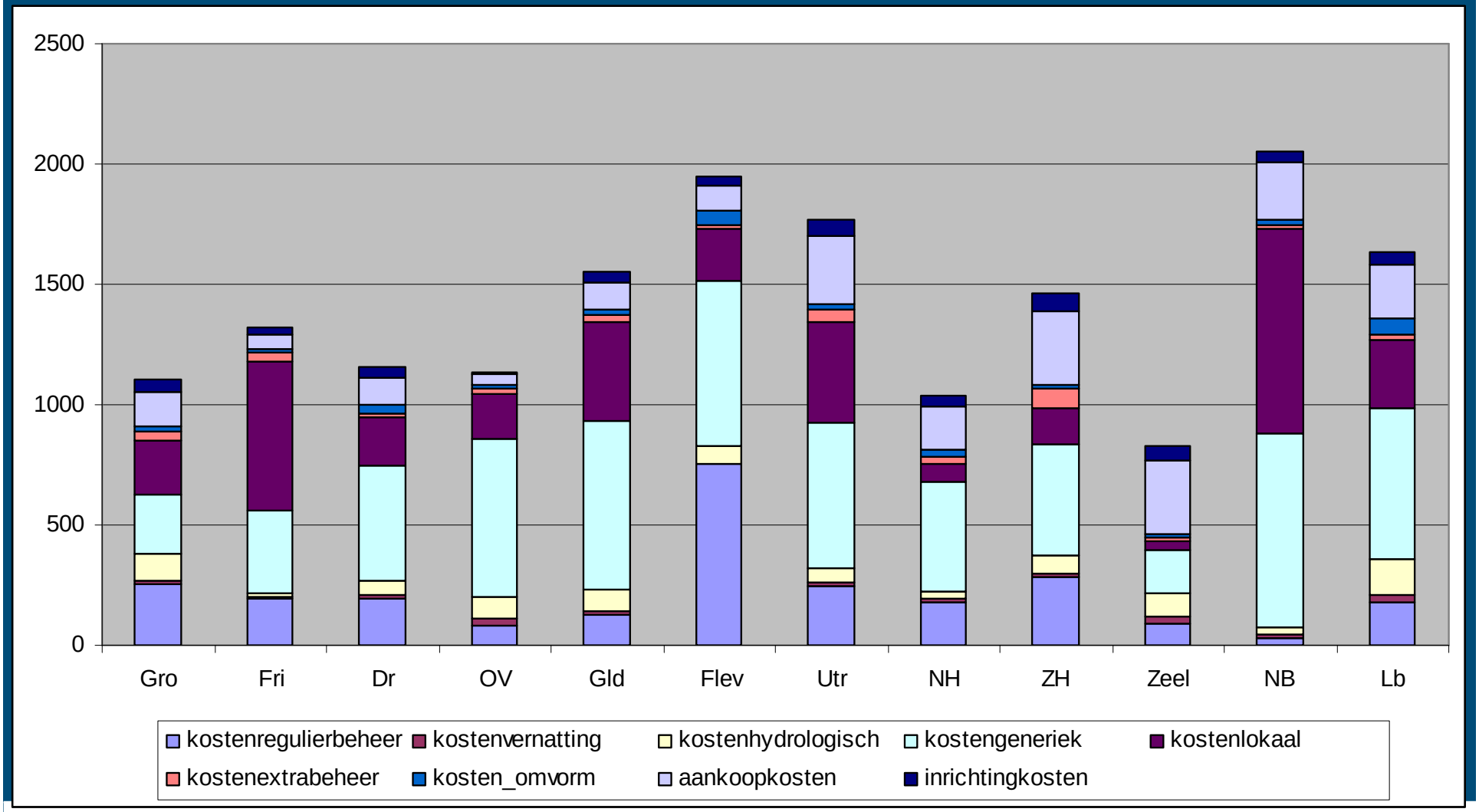
Methodology Phase 1 (4)

- Costs
  - opportunity costs principle
  - costs and revenues, directly related to the ecological goals of the EHS
  - costs and expenditures

Methodology Phase 1 (5): Cumulative cost curves



Methodology Phase 1 (6): Average costs per province (euro/ha/yr)



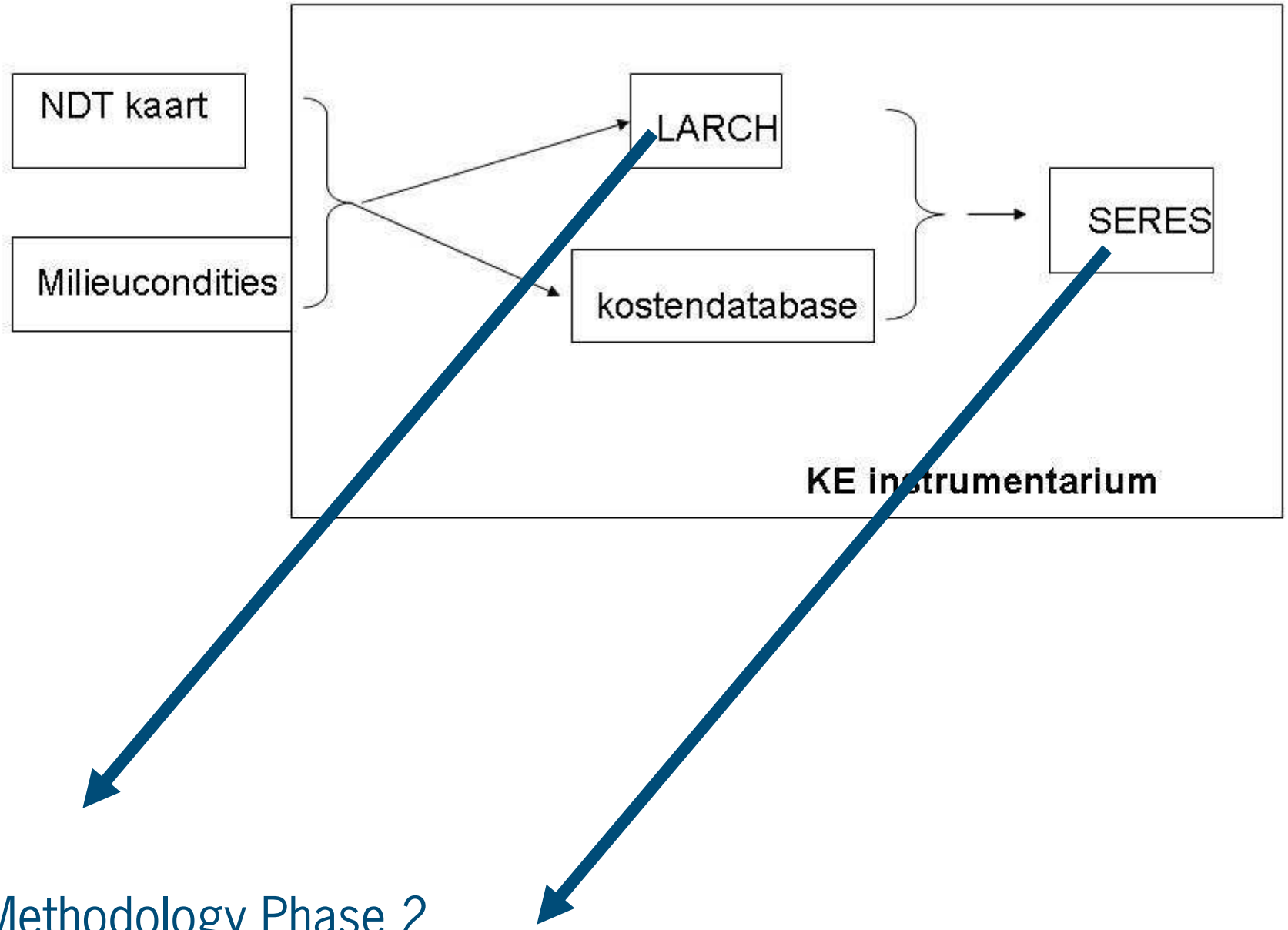
Methodology Phase 1 (7):

- Methodology suitable to analyse…
  - areas in the NEN on their costs: relatively inexpensive or expensive
  - analyse relative importance of various cost items
  - realization possibilities for the NEN given a specific maximum expenditure

- but…..
  - All areas are analysed separately;
  - Interdependence between areas important for biodiversity, but neglected;
  - knowledge on conservation status of ‘target species’ nationwide missing

Methodology Phase 2 (1)

- Methodology needs to be extended
  - Interdependence between areas and biodiversity added
  - Optimization:
    - minimize cost
    - goal biodiversity: conservation of ‘target species’



Methodology Phase 2

Methodology Phase 2 (2)

- LARCH
  - Calculates spatial coherence of the NEN…
  - using
    - Data on environmental conditions (see Phase 1)…
    - Species specific data on sustainable conservation requirements (surface area)

Methodology Phase 2 (3)

- Preparation for the Optimization procedure
  - Assess required surface area per target species
  - Determine number of areas that meet these condition
  - Sustainable population: judgement
- Determination location of these areas for each target species
  - one area or a network of (small) areas
- Add costs (Phase 1) for each area

Methodology Phase 2 (4)

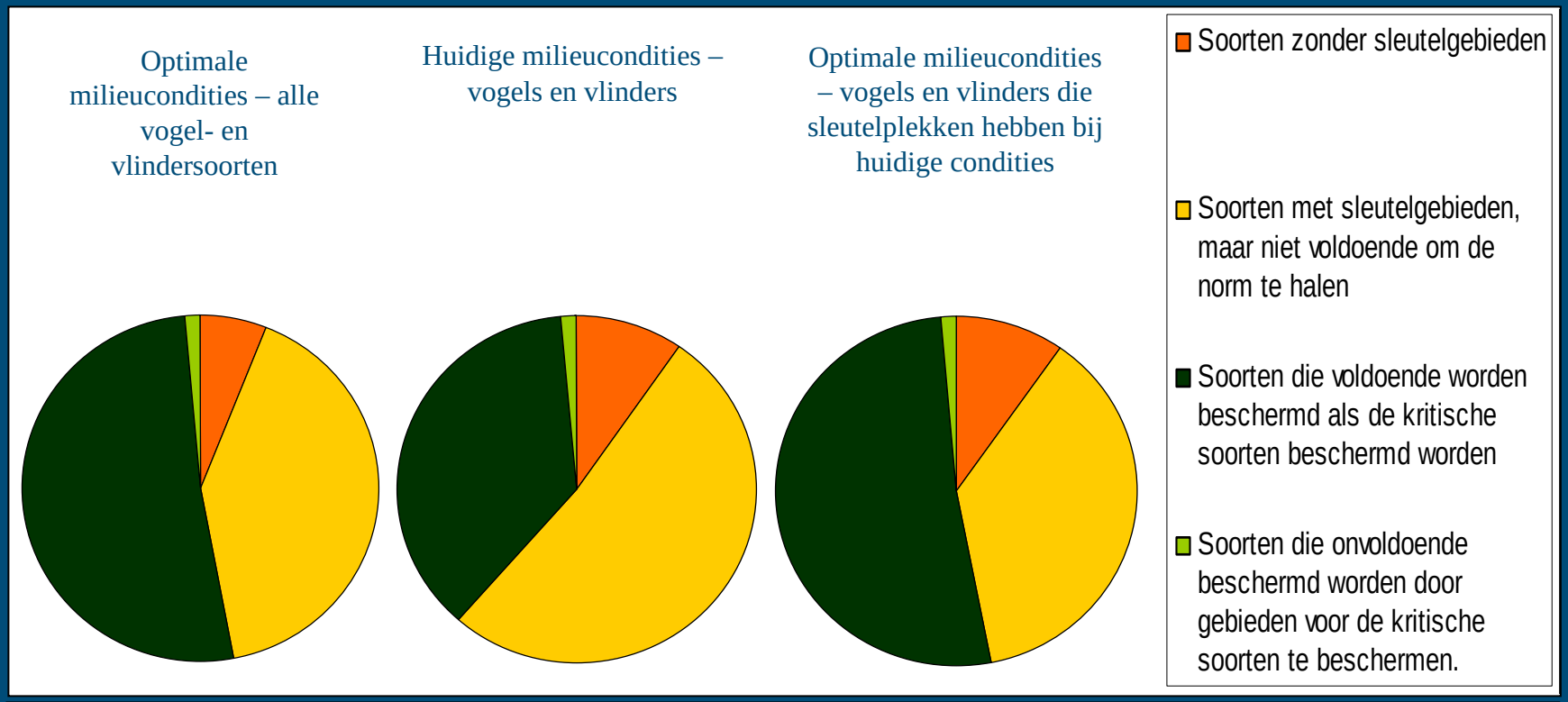
- Optimization procedure
- Selection of Reserve Sites (SERES).
  - Which nature areas are at least necessary to assure sustainable conservation of target species, against minimal costs?

  Approach
  - optimal selection of sustainable populations
    (NB: areas are linked with populations)
  - prioritize 'critical species'
    (sustainable conservation not assured)
  - Identify target species that profit from 'critical species'
  - optimize the remainder of the target species

- So far…
  - No flora, only fauna
  - Both optimal and 'suboptimal' environmental conditions

Methodology Phase 2 (5)

Examples results Birds & Butterflies



Figuur X2. De verdeling van de soorten over de verschillende groepen in diverse scenario's. Elk scenario heeft in totaal 132 soorten.

Methodology Phase 2 (7)

- Now we have
  - information on the cost effectiveness of individual areas, aiming the conservation of the target species of the NEN
- Results to be interpreted carefully!

Few Concluding remarks

- Methodology
  - New (i.e. phase 2)
  - Relation costs and environmental conditions
  - Infrastructure not taken into account
  - NEN as network: improvement possible