

## Bio-diverse cities

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## 2010 year of biodiversity

- Raise awareness of importance of biodiversity
- More and more species of flora and fauna worldwide are under threat or disappearing. This must be stopped.
- Due to urbanization, industrialization and large scale agricultural practice



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## Urbanization offers possibilities

- Rich and varied greenery in city significantly increases biodiversity
- Urban greenery offers a home and a food source to many kinds of insects, birds and other animals
- Additional positive effect: it brings nature closer to people



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## Basic factors

- Good design / planting
- Good management
- Right choice of species / cultivars



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## Research Applied Plant Research on biodiversity

### Plant communities and ecology

- use of perennials and shrubs underneath trees
- combinations of perennials and bulbs for long-lasting plantings
- use of low-maintenance perennials in cities
- ecological banks along canals
- regional plantings
- natural enemies of pests in nursery crops
- use of plants on green roofs and green walls



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### At species level:

- the functionality of alien species compared to native species
- the value of new (street) trees for our cities
- the attractiveness of certain plant species for butterflies, bumblebees and bees
- many variety trials



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### New Dutch brochure



Biodiversiteit in tuin en plantsoen

Biodiversity in garden and urban green

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### New Dutch brochure

- Text PPO; edited by Plant Publicity Holland
- Financed by Nursery Industry & Dutch Product Board for Horticulture
- Made for: policy-makers, green space managers, landscapers and educators




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### Tips and advice to stimulate biodiversity in cities



### Factors that affect biodiversity




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### 1. Plant diversity



biodiversity

### 2. Types of plantings





Example: Floral meadows, prairie-plantings and mixed borders



Example: Ponds, banks and water gardens



Example: Under plantings of trees and tree gardens



Example: Green roofs and green walls



Example: Private gardens



Example: Hedges





Example: Mixed hedge and bird groves



### 3. Choice of individual species and cultivars



Example: Species attracting bees



*Cephalanthus occidentalis*

*Aster ageratoides*

*Tilia spp.*

Example: Species attracting butterflies



*Agastache spp.*

*Buddleja davidii*

*Sedum spectabile*

Example: Species attracting birds



*Cornus sanguinea*

*Taxus baccata*

*Amelanchier lamarckii*

### Native versus alien species

- Closely related to biodiversity
- Many countries protect their own native species (according convention on biological diversity; Rio, 1992)
- In principle the native flora (and fauna) is better adapted to the local circumstances
- But: .....



## Climate is changing

- Higher temperatures and more extremes
- Native species & provenances can't adapt fast enough by evolution
- More and more alien species and provenances are better adapted



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## City climate is different from countryside

- Temperature is higher
- Soil is drier (pavement)
- Many alien species are better adapted



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## Advantages alien species and cultivars

- Selected for high quality green designs
- High ornamental value
- Good adaption to city climate
- In principle positive influence on biodiversity



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## Critical remarks alien species and cultivars

- In natural areas native species are recommended
- Some alien species are invasive (ca. 1 of 1000)
- Using one or a few cultivars or clones gives less (genetic) variation
- Sterile and double-flowered cultivars are less attractive for birds and insects



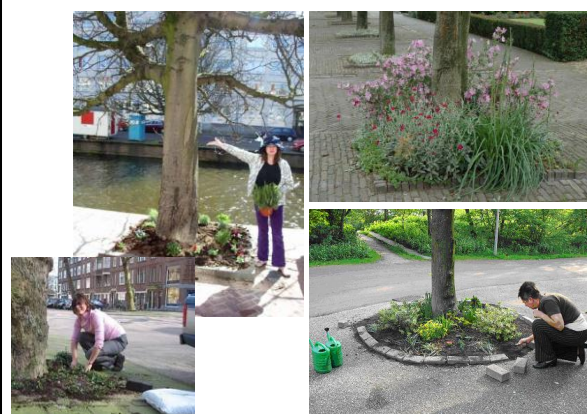
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## Creative initiatives



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## Sponsoring of tree-gardens





Contests: e.g. Who has the best (bio-diverse) garden?



Organizing lectures or excursions



Landscape management by volunteers



Floatlands in city-canals



Picking gardens in or near cities



Grants for bio-diverse plantings



### Care for monumental trees



### European approach

- Dutch brochure very successful
- Environmental care is European item (doesn't stop at the border)
- European countries can learn from each other's expertise and experience
- New research is needed, based on specific circumstances for different European countries and cities



### Three suggestions

1.

What plant species can be used and which plantings and plant combinations (plant communities) are most successful for increasing biodiversity in urban areas?



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2.

What is the effect of climate change on biodiversity and how can we counteract this by adapting the greenery in the city?



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3.

How can we stimulate citizens to care for the biodiversity in their city and which aspects matter to them most?



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Thank you for your attention!



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