TEDEN SREDOZEMSKE OBALE IN MAKROREGIONALNIH STRATEGIJ
Izola, Slovenija
15. – 17. september 2025

MEDITERRANEAN COAST AND MACRO-REGIONAL STRATEGIES WEEK
Izola, Slovenia
15 – 17 September 2025

The Importance of Biodiversity in Coastal Cities

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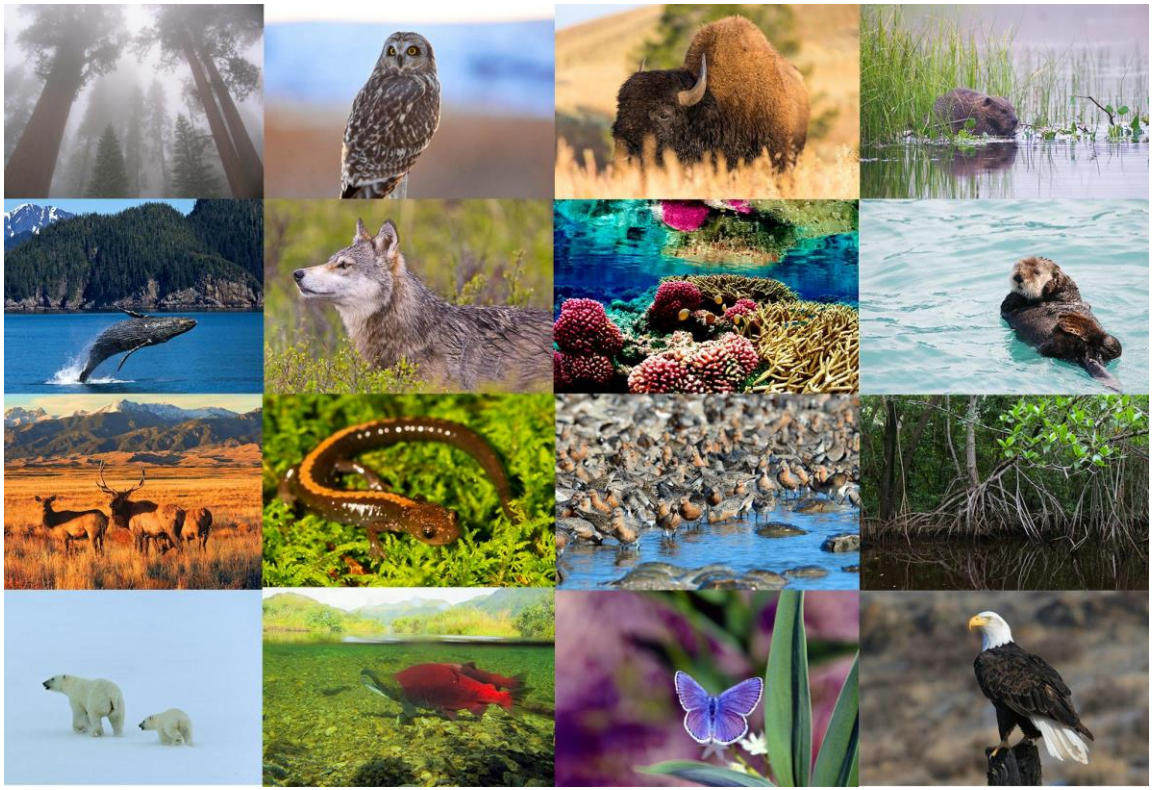
What is biodiversity?



Biodiversity

→ **the variety of life** on Earth (CBD)

Species diversity

- plants, animals, microbes

Habitat diversity

- forests, rivers, parks, gardens

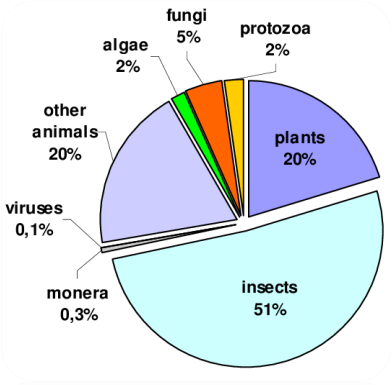
Functional diversity

- pollination, carbon storage, decomposition

Why is biodiversity important in cities?

- Climate adaptation → cooling, CO_2 storage
- Quality of life → clean air, less noise, shade
- Health → stress relief, recreation

Insects: dominant group in animal biodiversity



Most diverse animal group – insects represent ~75% of all described animal species

Provide essential ecosystem services: pollination, pest control, decomposition

Act as indicators of ecosystem health

Natural habitats of insects

- **Forests and old trees** – beetles, ants, moths
- **Grasslands and meadows** – butterflies, bees, grasshoppers
- **Wetlands and riversides** – dragonflies, aquatic insects
- **Shrubs and hedgerows** – shelter and feeding sites
- **Agricultural landscapes** – pollinators, predators, pests





Threats to insects in urban environments

- Habitat loss and fragmentation
- Pesticides and pollution
- Light pollution
- Invasive species
- Climate change

Biodiversity in EU legislation and strategies

- **Biodiversity Strategy 2030** → restore nature, 3 billion trees
- **Habitats Directive** → protects species in urban areas
- **Natura 2000** → 5,000 km² protected in cities
- **Green Deal** → green infrastructure, nature-based solutions

Studying urban insect biodiversity

Scientists use simple tools to observe and capture insects in different habitats.

Our work in **ZeleNatura**:

- Yellow sticky traps – flying insects
- Transects and field walks
- Entomological net
- Identification in the lab with a stereomicroscope

Examples of functional insect groups recorded on yellow sticky traps
A) Natural enemy of harmful insects – parasitic wasp (Sphecidae)
B) Indicator saproxylic species – Buprestidae
C) Forest pest – Buprestidae (*Agrilus* sp.)
D) Natural enemy of harmful insects – predatory fly (Tachinidae)

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From data to recommendations

Data on insect communities = **indicators of ecosystem health**

To compare different green spaces in cities

To identify “gaps” where biodiversity is low

To suggest **targeted green interventions**

Recommended Physical Elements and Practices for Biodiversity

Hedgerows and diverse vegetation strips – shelter and food for insects, birds, and other beneficial species (e.g. predators such as *Anthocoris nemorum*)

Urban trees and tree lines

- Provide habitat for insects, birds and other wildlife
- Support insects with nectar, pollen and nesting sites
- Act as “green corridors” – connect fragmented habitats

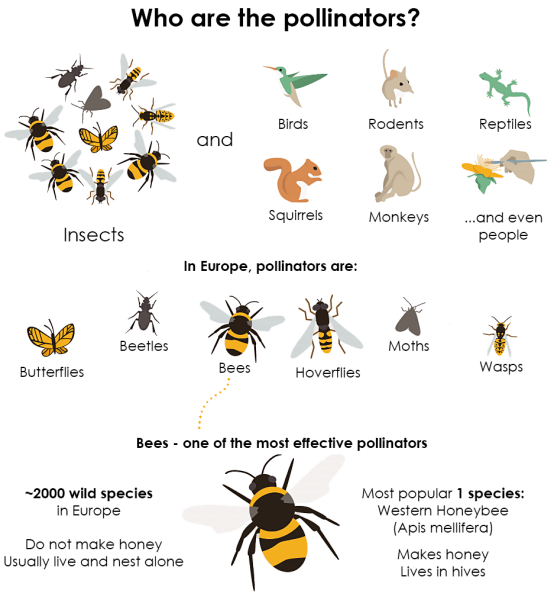
Value is highest when we: **use native species, mix trees with shrubs, keep age diversity, and even retain some deadwood**

Vertical greening: walls and facades

- Adds habitats where space for trees is limited
- Provides food and shelter for insects
- Supports beneficial insects
- Native climbing plants and diverse vegetation

Continuous bloom with flower-rich meadows and strips

- Nectar, pollen and shelter through the whole season
- Breeding, overwintering and resting habitats
- Support bees, butterflies, bumblebees and other pollinators
- Even small patches (≥ 5 m²) can help
- Water sources (shallow dishes, ponds) are important



Native and Drought-Tolerant Plants for Mediterranean Coasts

- Adapted to hot, dry summers → less water & maintenance
- Support native insects, pollinators, and birds
- Stabilize soil and increase climate resilience

Examples:

Trees and shrubs: *Quercus ilex, Arbutus unedo, Olea europaea var. sylvestris*

Aromatic plants: *Lavandula, Rosmarinus, Thymus, Salvia*

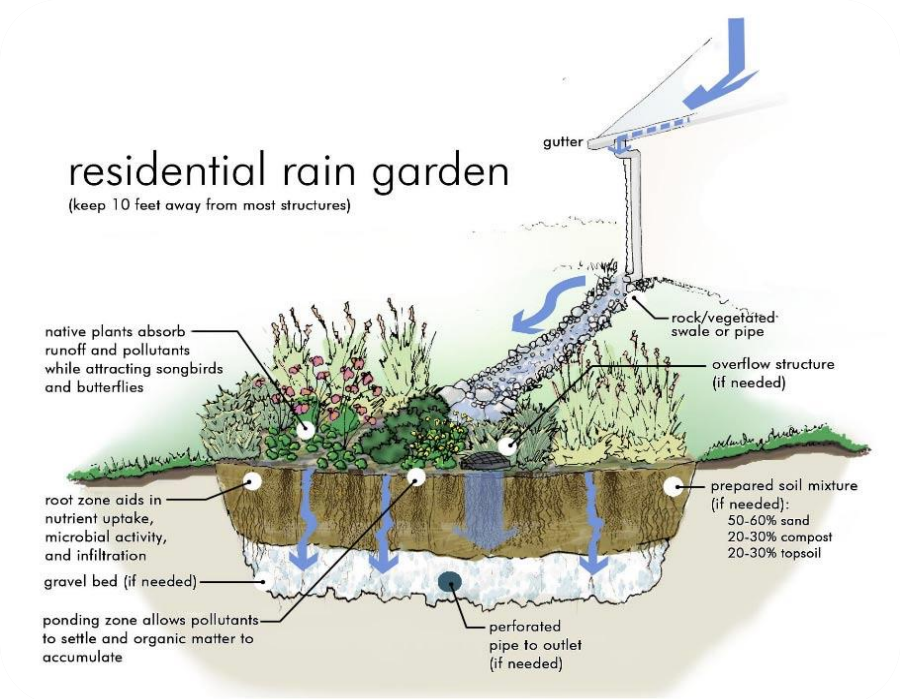
Grasses and herbs: *Festuca, Poa, Achillea*

Wildlife-Friendly Urban Design

- Birdhouses and bat boxes
- Insect hotels = nesting sites for bees, ladybugs, lacewings, beetles

Rain gardens

- Capture rainwater and reduce flooding
- Low-maintenance and climate-resilient
- With native plants → also support insects



Urban orchards

- Create diverse habitats for animal biodiversity
- Provide food for people

Reduce mowing and chemical inputs

- Frequent mowing reduces flowers, plants and insect diversity
- Low mowing = more pollinators, less pests, lower costs
- Less pesticides = safer for bees, butterflies, birds & people

Raising awareness and engaging citizens

- Educational campaigns and workshops
- Community projects: biodiversity trails, info boards,...
- Citizen science projects (fireflies, butterflies, pollinators)
- Positive examples: “Krešo Krijesnica” campaign in Croatia

Take-home message

Insects matter – and cities can help them thrive.

Thank you for attention!

Contact: sskendzic@agr.hr

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