

# Natural verge management

## What are the ecosystem services provided by natural verge management?

### Why do we need biodiversity?

All life is dependent on other life. We too cannot exist without biodiversity. Species fulfil a number of functions in this network, demonstrate different behaviour patterns and complement each other. Examples are hunting for other species, the way in which plants root in the ground, or the pollination of flowers. Diversity ensures overall resilience to changing environmental conditions and in various different ways contributes to our quality of life and wellbeing.

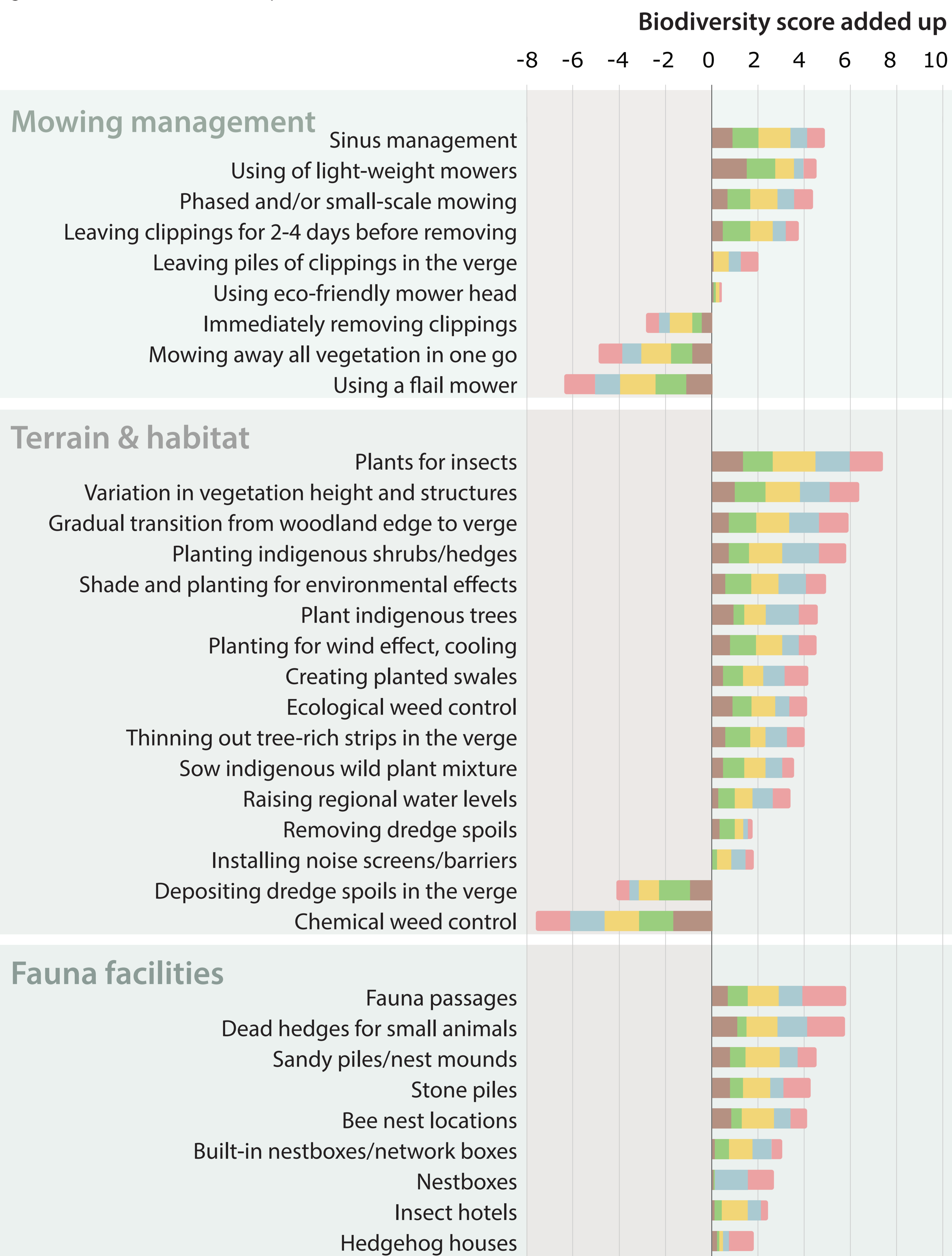
Road verges represent an important habitat for a wide diversity of plants, soil life, insects and other animals. Many of those species are under great pressure. The way in which we design and manage our road verges is crucial to enhancing that biodiversity. In return, biodiversity sustains our living environment and our wellbeing. Natural processes help regulate air quality, temperatures, the availability of clean (drinking) water, healthy growth of our crops and pollination by feral insects. Every section of biodiverse road verge and every square metre of space for nature helps sustain these natural services. Below is a summary of ecosystem services that biodiverse verges provide.

### Biodiversity score

Naturalis and HOCHTIEF PPP Solutions GmbH have joined forces to draw up a list that shows which verge management measures contribute to biodiversity and help sustain ecosystem services. This list has been supplemented with measures proposed by ecologists.

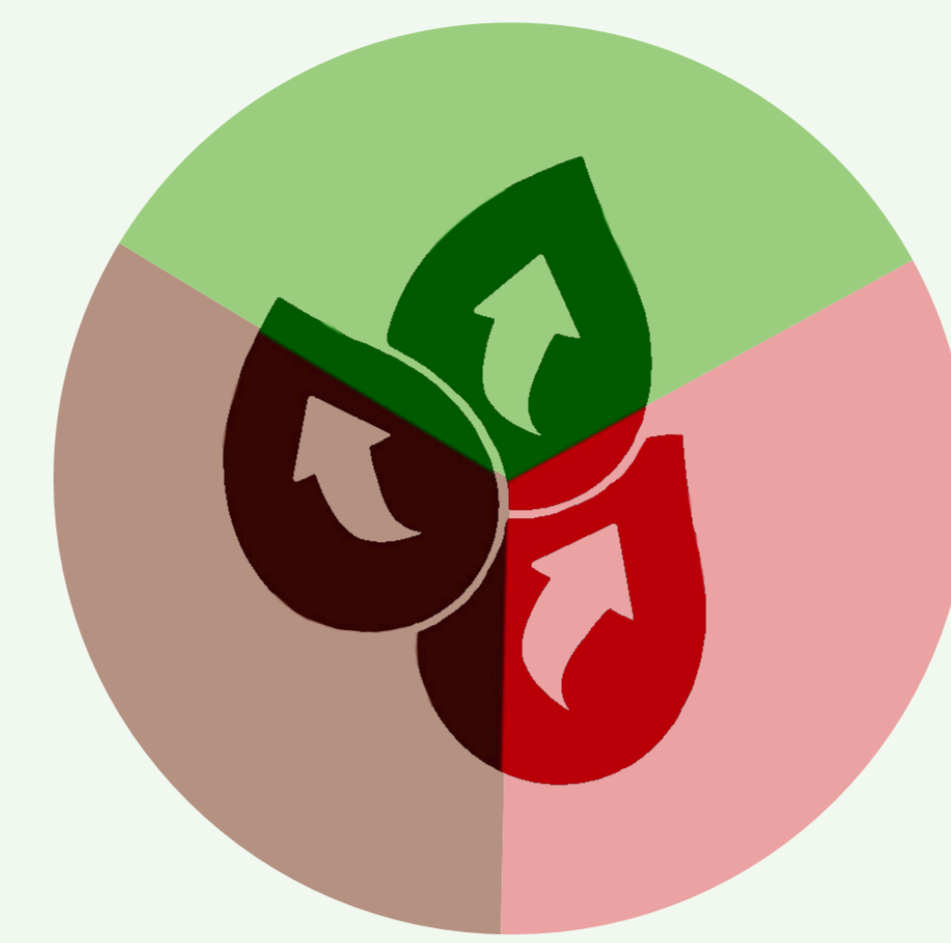
Naturalis then shared this list of measures with more than 20 (urban) ecologists, biologists and experts in green area management, in the form of a questionnaire. Based on their input, a point score was awarded to determine the influence of each measure on the different species groups, and an overall biodiversity score. Those measures were then supplemented with specific points for attention and sources of information.

This list can be broadly applied to any type of verge, including the roadside verges along the A1/A6 motorway section developed by the SAAone consortium. They will also be responsible for managing the area for the next 25 years. [Check out the Valuation tool for Natural verge management to enhance your understanding](#), also suitable for verges along national highways, provincial roads, railway embankments and even the (narrow) green areas in residential developments.



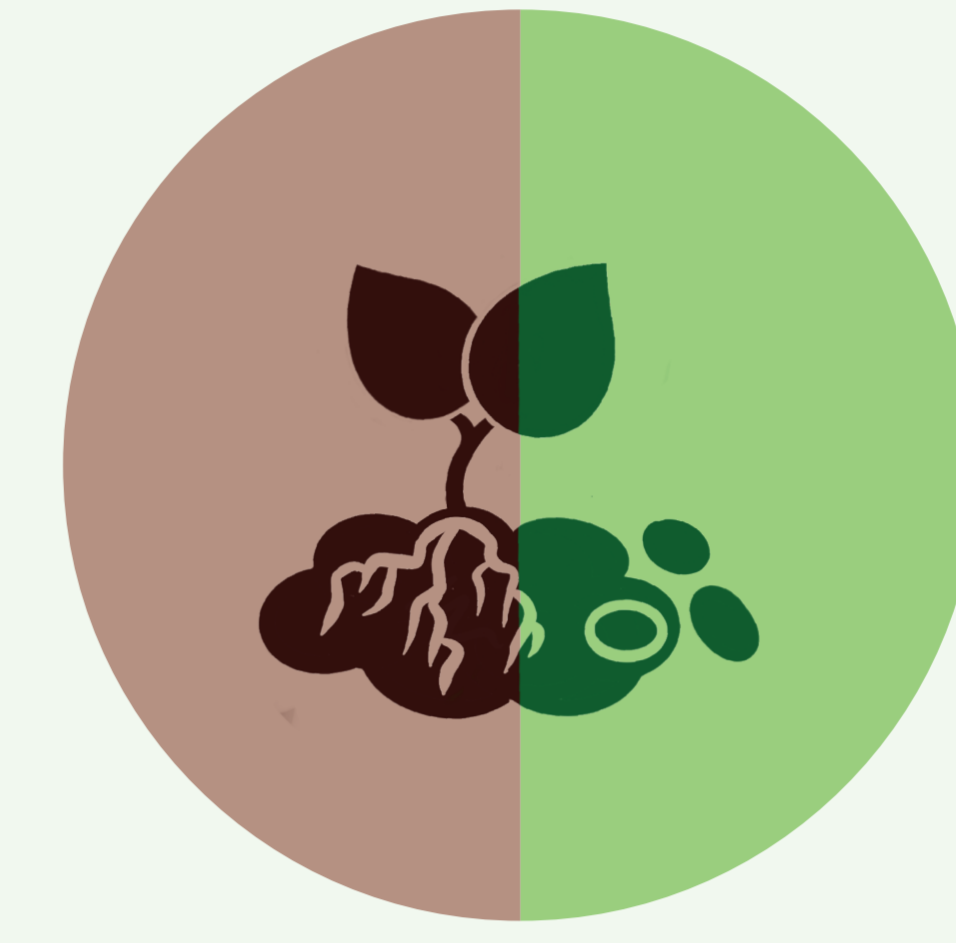
### Monitoring

All of these measures require aftercare. With monitoring, the quality of the measures implemented is checked. Long-term monitoring also considers the status and diversity of the vegetation, together with a number of indicator species such as certain insects. This paves the way for steps to improve the policy.



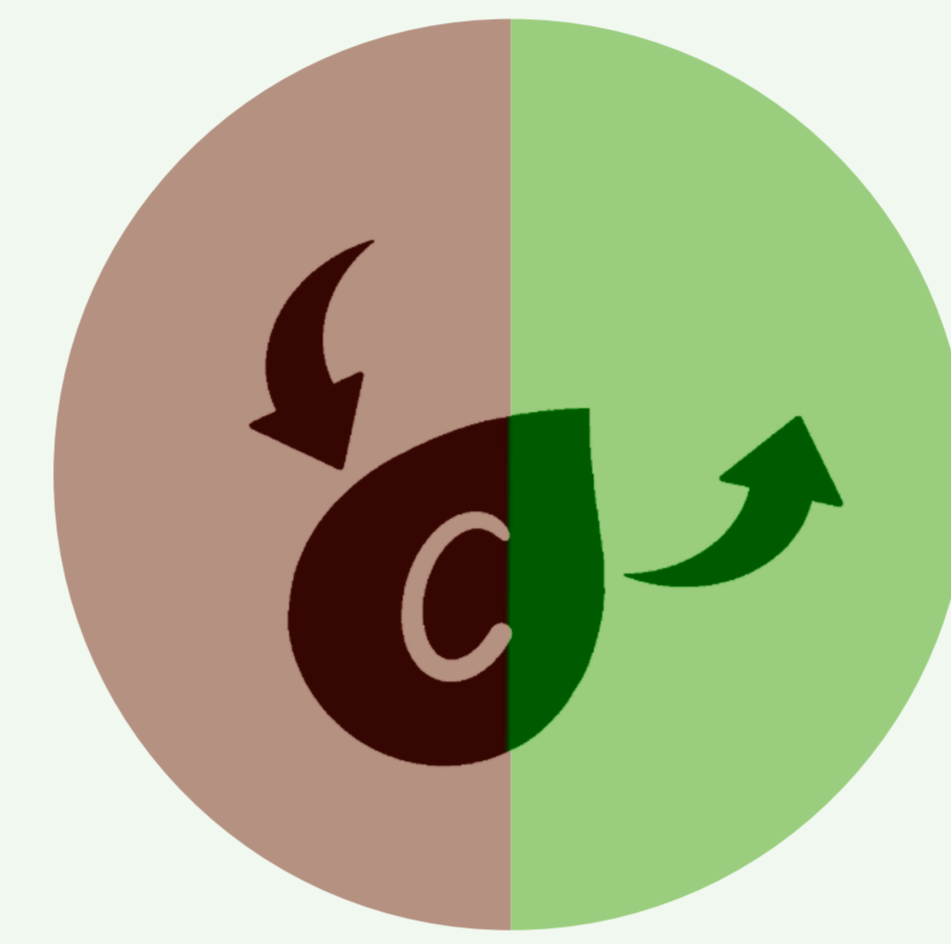
#### Soil fertility and quality

Soil life, including bacteria, fungi and worms help to preserve soil fertility, essential for the availability of nutrients for plants.



#### Preventing soil erosion

Planting and effective verge maintenance reduce soil erosion. This encourages water infiltration into the soil and prevents further erosion by water drainage.



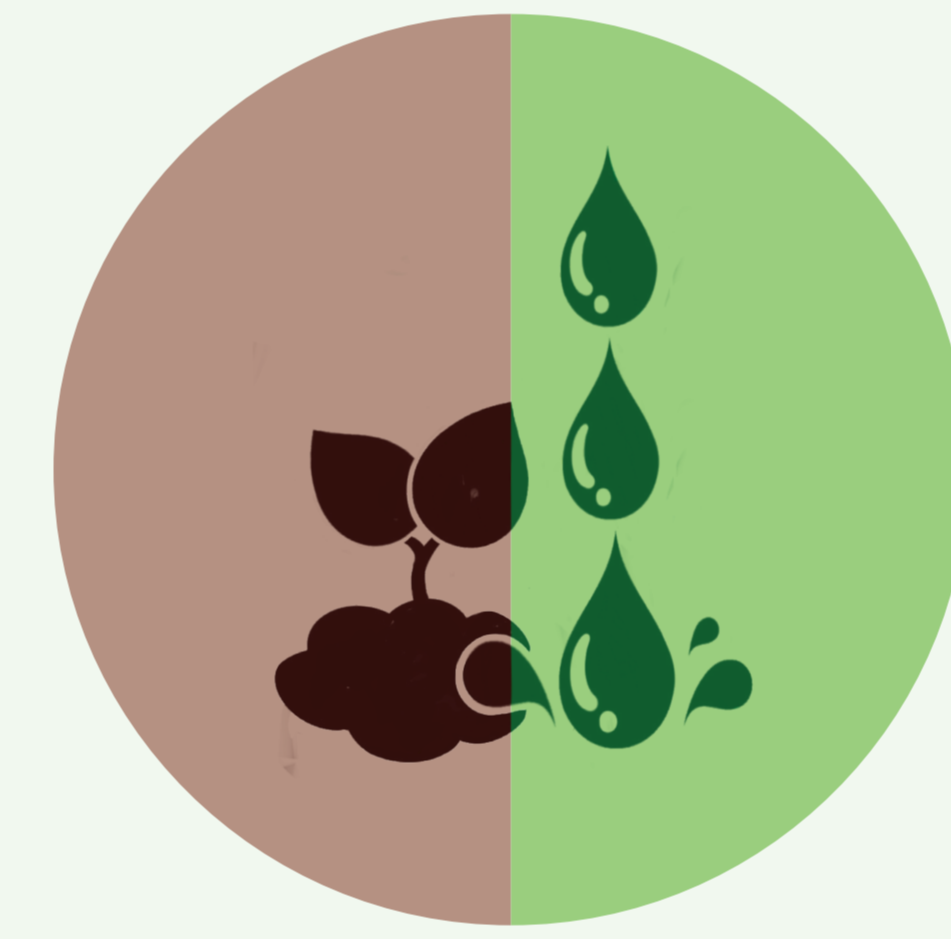
#### Carbon sequestration

Both in plants and in the soil, carbon is stored for long periods of time. Greening verges helps maintain a stable climate.



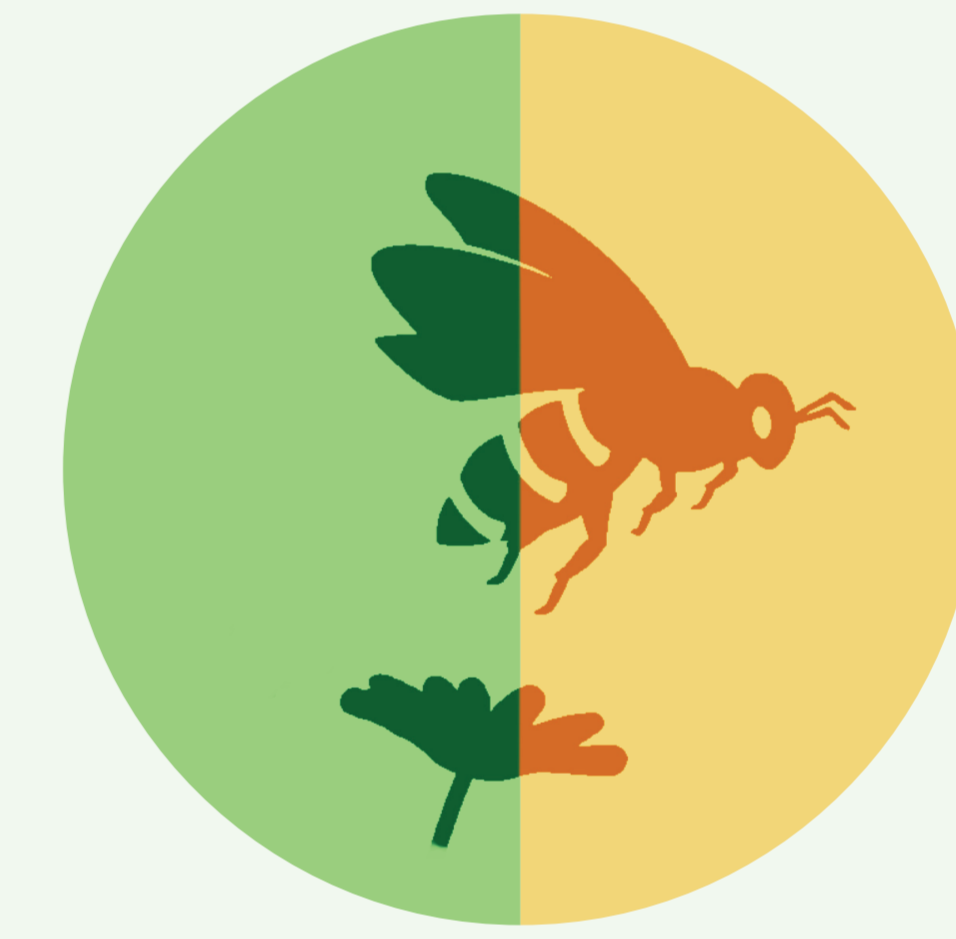
#### Purifying capacity of soil, water and air

The natural filtering effect of soil provides clean drinking water. Trees and other plants filter particulate matter from the air.



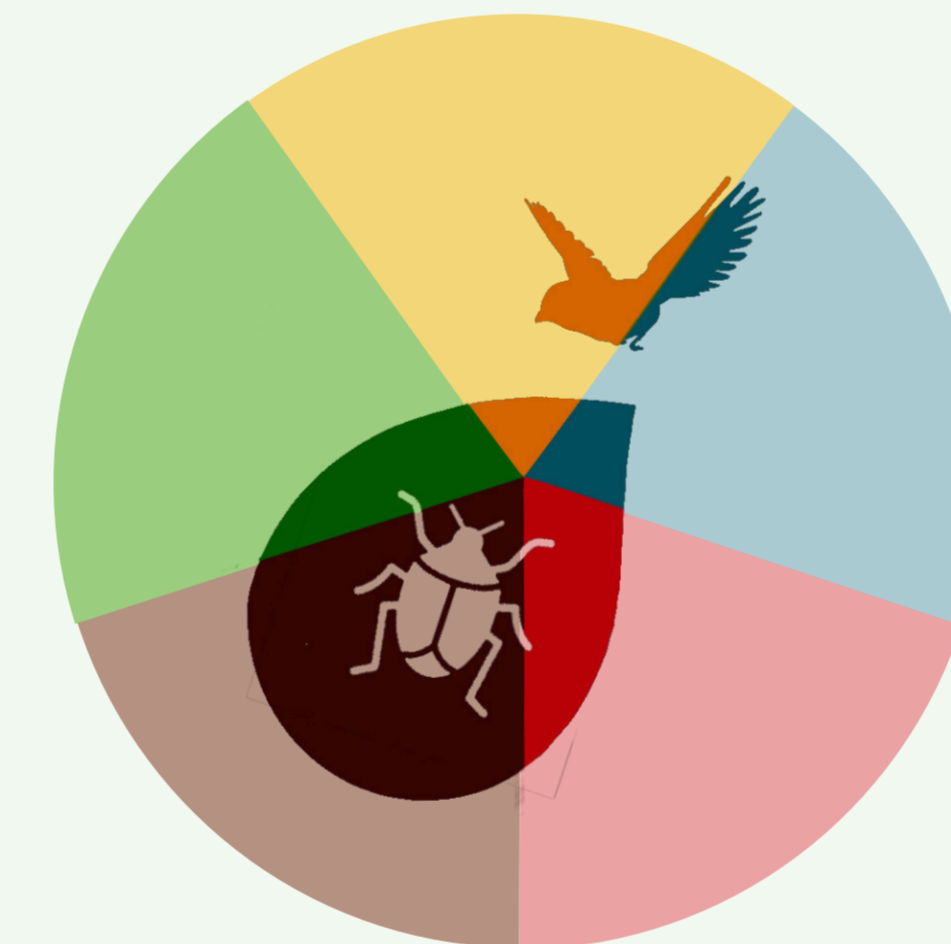
#### Water storage and regulation

Urbanisation and increased paving impair the discharge of water. Vegetation enables water to penetrate into the soil. Greening verges helps prevent flooding.



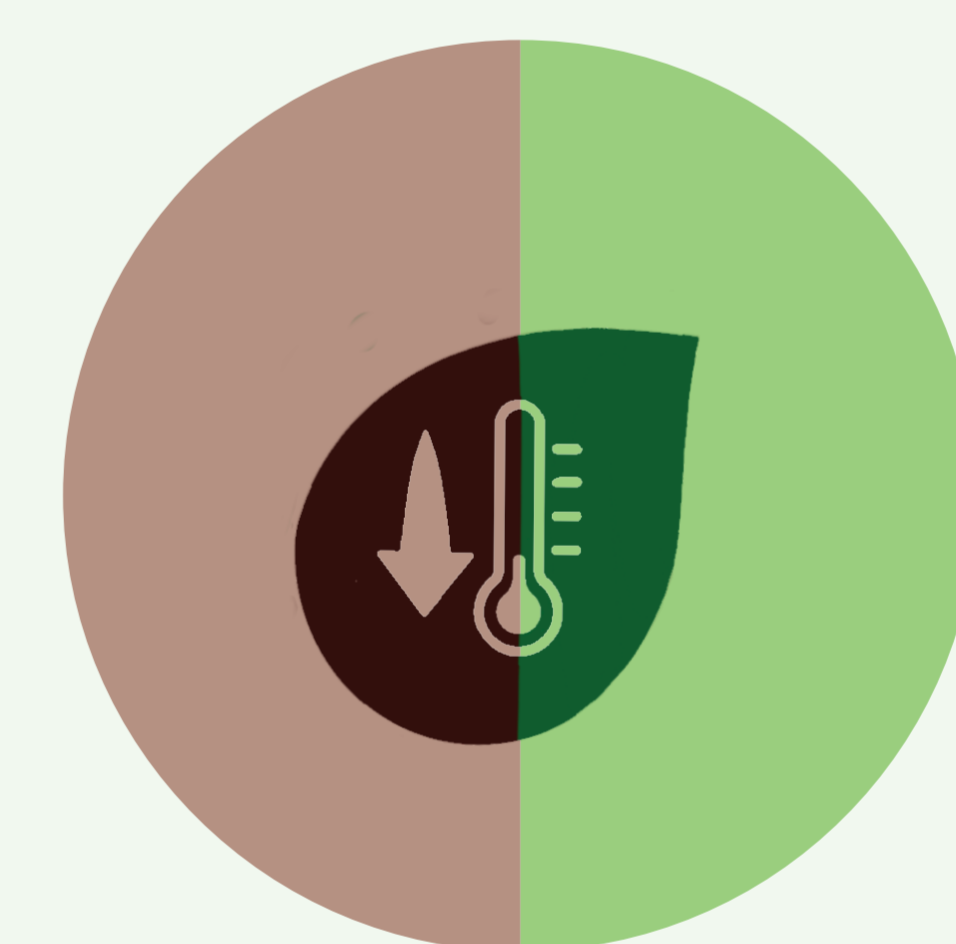
#### Pollination

Many species of plants and trees reproduce thanks to pollination by insects. Without insects, the harvest of crops dependent on pollination would be 90% lower.



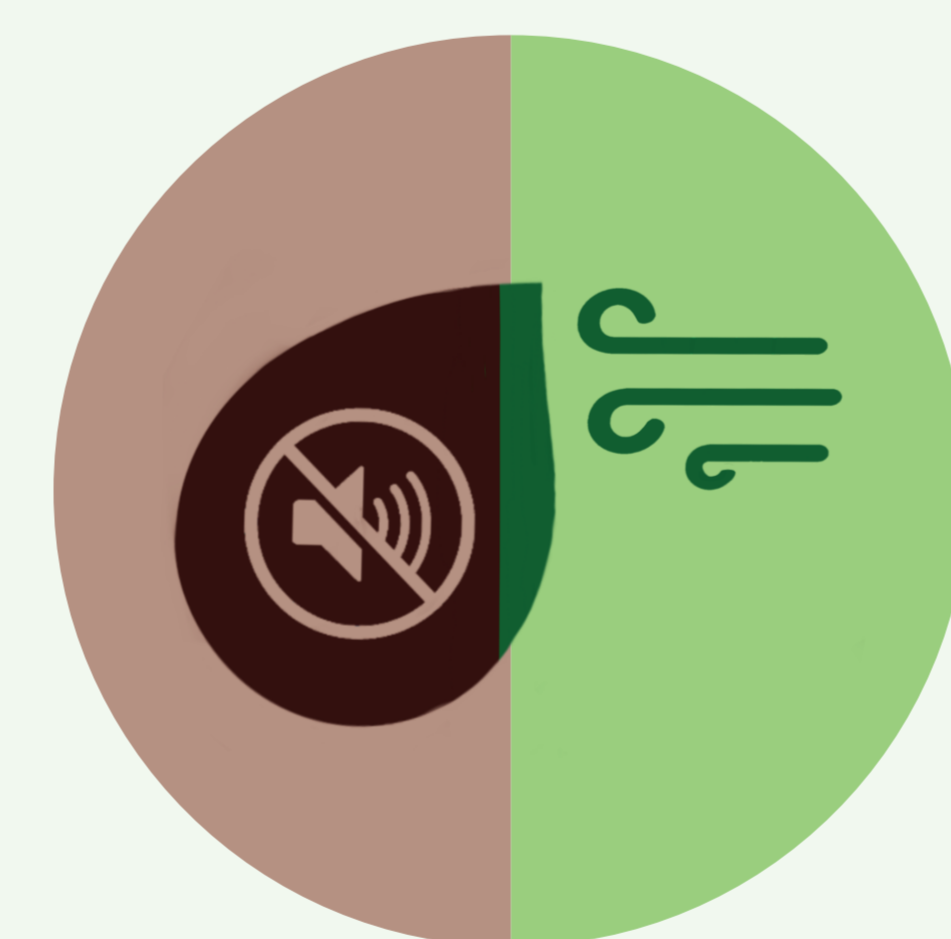
#### Pest control

The greater the diversity, the smaller the risk of pests. Natural enemies such as bacteria, fungi, insects, spiders, birds and small mammals suppress pests and disease.



#### Urban and roadside cooling

A green infrastructure with plants or trees can tackle heat stress and help cool cities and roadsides.



#### Absorption of noise and wind

Vegetation absorbs noise and wind. For example trees that are planted as a noise barrier near busy roads.



#### Biomass for energy

Biomass can be a source of renewable fuel for energy as a sustainable alternative for fossil energy such as coal and gas, thanks to its short carbon cycle.

soil life   flora   insects above ground  
birds   other groups (fauna, etc.)

#### Biodiversity score

+2 = major positive influence  
+1 = some positive influence  
0 = no influence  
-1 = some negative influence  
-2 = major negative impact

### Contact

For ideas, additions or questions, contact us via: [kennisnatuurlijk@naturalis.nl](mailto:kennisnatuurlijk@naturalis.nl)

### More information

View the complete table and the Knowledge Naturally! study, scan the QR code, or via: [naturalis.nl/en/scorekaartbiodiverseberm](https://naturalis.nl/en/scorekaartbiodiverseberm)  
Research by Lotte Vroomans, Naturalis.  
Visualisation research and illustration by Zina Broeksma. Version February 2024.



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