

How peri-urban areas act as source for nature quality in cities

Hoe natuur in de stadsrand als een bron kan dienen voor stedelijke natuurkwaliteit

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Summary

Cities often lack sufficient space for high quality of urban nature, while peri-urban areas do have more opportunities to support that kind of nature. However, the perception of citizens is mainly based on nature-experiences within their direct environment. Therefore a combination in which the peri-urban area would support the nature quality within cities would be perfect.

In the case Hoogvliet (part of Rotterdam) the spatial ecological relation between the city and its environment was studied by using GIS and Correlated Random Walk (CDW) simulation models. CRW-models simulate movements of individuals of all kinds of animals by using parameters like velocity within different biotopes and transition-probabilities between biotopes. For this study butterflies are selected as species-group to act as indicators for both ecological and nature-experience values. Several scenarios are used to describe the effect of landscape changes (urban redevelopment) for species. 'Release-locations' within those scenarios are representing alternative sites for peri-nature development and resulting sources of dispersers. The simulations provide insight into the role of structural elements in the urban landscape, determining the flow of individuals through the city and the potential exchange of individuals between the peri-urban area and the city.

The results of the simulation show that peri-urban areas could indeed play a remarkable important role as sources for urban nature. By using those insights within the urban planning process it will be possible to maintain or perhaps even improve the level of nature quality in cities.