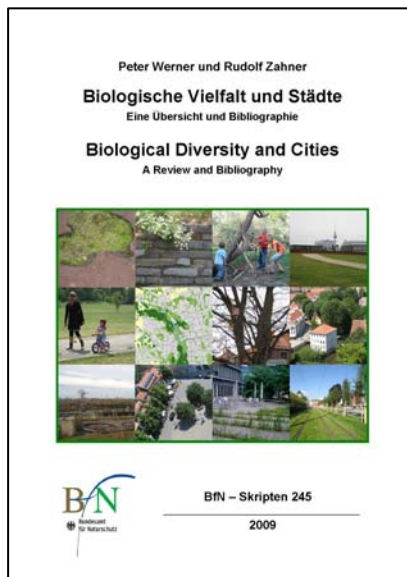


Biological Diversity and Cities - A Review and Bibliography



In the field of cities and biodiversity there exist already numerous publications on investigations and inventories of animal and plant species and their habitats in cities. However, a qualified overview on the worldwide, current state of knowledge about the role of urban regions for the conservation of biological diversity as input for the technical and political discussion was missing until now.

To fill this gap is the aim of this publication. This review provides both a technical and a discussion basis on importance, conservation and safeguarding of biological diversity in cities. At the same time this study contributes to the further support of the German National Strategy on Biological Diversity.

The present review considers more than 600 almost exclusively recent publications on the subject of biological diversity and cities. It is thematically structured along the following aspects

- Cities as sites of biological diversity
- Urban patterns and biological diversity
- Impacts of urban development on biological diversity
- Biological diversity and city dwellers.

Despite the enormous number of publications it becomes generally apparent that many issues are not yet clarified and that the worldwide scientific results are not fully comparable due to significant methodological differences.

As a matter of fact cities are sites of local and regional biodiversity due to their manifold habitat mosaic. Beside generalists and neobiota partly more than 50 % of the plant and animal species of the respective biogeographical region can be found in cities, whereupon these numbers mostly refer to vascular plants and birds. One of the reasons of high biodiversity in cities is the fact that cities are often situated in landscape settings that are naturally relatively species-rich.

Structurally a city can be viewed as a complex habitat mosaic. For the description of this relationship between the system as a whole and its sub-areas various studies use the matrix-patches-model of landscape ecology. Depending on the scale, the landscape area may be the matrix and the built-up urban areas the patches, or the urban area may be the matrix and the individual habitats within it the patches. In the latter case it has to be considered that the urban matrix itself often has significant percentages of green areas and therefore a high importance for biodiversity (e. g. UK: 19-27 % of the city area is covered with domestic gardens). Various studies throughout the world dealing with the urban-to-rural gradient show that the edges and transition zones between urban and rural areas are particularly species-

rich because they are intermediate disturbance areas. Referring to the impacts of urban development on biological diversity, a positive correlation between population density and therefore level of urbanisation and species diversity has been noted all over the world. On the other hand, growing urbanisation is responsible for global biotic homogenization.

The relation between biological diversity and city inhabitants, i. e. the connections of socio-economic and ecological data, is a research task with growing importance, because the use and design of areas in cities and the behaviour of people dealing with nature are dependent on various socio-economic factors. At the same time a positive correlation of biological features of urban areas with land values can be observed. Bearing this in mind, it will be important not only to take on board the people who live in the cities – both from the scientific and from the planning and practical sides, but also to understand and involve them as important players.