



Lay summary for SNF project Sinergia

Strategies for Better Gardens: Integrated Analysis of Soil Quality, Biodiversity, and Social Value of Urban Gardens

Aims of the research project

The main goal of this study is to examine the relationships between city and national policy and garden management practices; and the effects that garden practices have on the social value, the biodiversity, and the soil quality of gardens. Once these impacts and relationships are understood, strategies can be developed to encourage sustainable management, including providing arguments for their continued existence, of urban gardens at both the city and individual plot levels. The lead question for this study is: What are the social, ecological and soil sustainability impacts of the cultivation of urban gardens under various management concepts in Swiss cities?

Background

Cities are often seen as the built environment with the primary role of providing a platform for commerce, transport, communication and housing. However cities also contain green spaces, which provide habitats for fauna and flora that contribute to maintaining ecological stability, both above and below ground. Furthermore, urban green spaces provide socio-cultural ecosystem services, such as food production and wellbeing from contact with nature. The Action Plan of the Swiss Biodiversity Strategy in urban environments has nominated multi-functionality of green spaces among the major concepts, which suggests that urban gardens should perform both ecological and social functions. Despite increasing recognition of its social and ecological importance, and the considerable proportion of urban land under cultivation, there has been insufficient study of urban gardens. Consequently, the relationships between urban gardens and both the well-being of residents and the provision of habitats and corridors for plants and animals are new and important fields in which knowledge gaps exist. Despite the importance of urban green spaces, they are under threat in many Swiss cities, as well as in most European urbanized areas, as cities become denser and green spaces become attractive targets for development. New strategies are needed to strengthen arguments for the preservation of urban green spaces, which should include how to maintain or enhance the sustainability of green space management so that biodiversity and soil quality are secured.

Methods

The study is based around four interlinked subprojects that will all take place in a core group of 80 plots of private and allotment gardens in three case study Swiss cities: two in the German speaking part of Switzerland and one in the French speaking part. The main focus of the research will be on the Central Plateau (Mittelland) region that has experienced particularly high levels of biodiversity decline in recent years. To reflect the cultural

and spatial diversity of Switzerland, and to include alternative garden systems, subprojects A and B will also include additional plots in the case study city and plots from two other Swiss cities.

In subproject A, we will assess the influence of government policy on food production practices and how information is gained and exchanged by urban gardeners, along with the motivations for adopting and implementing particular management concepts in the various garden types. In subproject B, we will conduct a complete and systematic assessment of the social values and the comparison of the social value of different kinds of gardens in the urban area (allotment gardens, private gardens and alternative gardens such as community gardens and rooftop gardens). In subproject C, we will assess the effects of management practices on the chemical, biological and physical soil properties in private gardens and allotment gardens. In subproject D, we will quantify the contribution of urban gardens to the different aspects of biodiversity of plants and animals, as well as their contribution in maintaining key above and below ground ecosystem processes and underlying services.

The methods that will be used by each subproject are:

- Subproject A-the motivations for choosing particular production concepts: policy analysis, policy network analysis, social network analysis, qualitative interviews, questionnaire survey;
- Subproject B-the social value of, attitudes towards, and aesthetic assessment of urban gardens: qualitative interviews, quantitative questionnaire survey with managers of urban garden, planning experts and the general public;
- Subproject C- the impacts of production strategies on soil quality: Chemical, biological, and structural analysis of soil; and
- Subproject D- above-and-below ground biodiversity and ecosystem services: Plant and arthropod survey, survey of ecosystem services, and survey of environment and management variables.

The garden types that will be targeted in this study are:

- Private gardens: they have been largely ignored in previous studies because city managers perceive that they can have only limited influence (from a legislative perspective) and because the benefits were assumed to be solely for the garden owner. However private gardens can make a significant contribution to biodiversity and to the wellbeing of neighbours and are important as spaces for human restoration and as habitats for plants and animals.
- Allotment gardens have an important social and environmental function in cities. The area under allotment garden cultivation is considerable with, for example, 2000 allotment gardens in Berne.
- New alternative forms of urban gardening, such as community gardens and roof gardens are increasingly discussed in the public, especially in the media. Although they are as yet a marginal contributor to food production in cities, they have a tremendous potential for community building, sensitising the population to nutrition, linking the population with biodiversity and ecosystem functioning, and encouraging integration.

Expected outcomes

Understanding of the relationship between soil quality and above ground biodiversity, paying particular attention to the overlap between soil and garden management practices, will allow the formulation of 'best practice' methods for sustainable soil management and for above ground biodiversity. For the first time, there will be an integrated assessment of the social and ecological value of urban private and allotment gardens, which can contribute to sensitizing the population to the value of threatened urban gardens. Knowledge and awareness gaps with regard to social and ecological ecosystem services will be identified, which will allow the formulation of targeted education strategies to inform the public of the value of these spaces. The motivating factors for gardeners to undertake sustainable management practices will allow the development of targeted strategies to encourage such practices.