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Mapping ecosystem services on brownfields in Leipzig: use pattern, valuation and motives of users contribute to ongoing 2030 urban sustainability planning

Priess Joerg A.

Helmholtz Centre for Environmental Research, joerg.priess@ufz.de

Catharina Pueffel

Humboldt University Berlin, catharina.pueffel@posteo.net

Dagmar Haase

Helmholtz Centre for Environmental Research - UFZ, dagmar.haase@ufz.de

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Mapping ecosystem services on brownfields in Leipzig: use pattern, valuation and motives of users contribute to ongoing 2030 urban sustainability planning

Priess Joerg A.¹, Catharina Pueffel², Dagmar Haase²

1 Helmholtz Centre for Environmental Research (joerg.priess@ufz.de)

2 Humboldt University Berlin (catharina.pueffel@posteo.net, dagmar.haase@geo.hu-berlin.de)

Abstract: Green urban brownfields are a particular type of urban green space and contribute to the quality of life by providing a variety of ecosystem services (ES). The objectives of this study were to map the actual use of ES and the perception of disservices (EDS), and second, to assess the personal valuation and motives of users in relation to site and vicinity characteristics of the brownfields. We assessed major spatial and neighborhood characteristics of the studied brownfields. To map ES use, we applied the smartphone application MapNat either jointly with ES users (> 200 users), or we mapped the ES uses of people in the units of observation (>300 users). Results suggest that brownfields play a particular role in the set of urban green spaces, providing characteristic ES such as opportunities to recreate, relax and retreat, partly differing from or complementing ES in formal urban green spaces. We identified spatial use patterns depending on local characteristics and personal preferences. For example, less accessible sites were relatively high valued and often used for dog-walking. Vice versa, better accessible sites were rather visited for unconventional stays and 'hang-outs'. The patterns of use identified in this study are of interest for management and planning of public green spaces, especially as conversion pressures on brownfields are increasing in growing cities, and planners require solid information to demonstrate the use of ES to justify the creation or persistence of urban green spaces e.g. as contributions to the ongoing "2030 sustainable city" process.

Keywords: Cultural and recreational ecosystem services; ecosystem disservices; green space; mapping ecosystem service use; urban brownfields.