

Soils within Cities



Levin et al. (Eds.):
Soils within Cities. Global approaches to their sustainable management

2017. IV, 253 pages, 113 figures, 23 tables

(GeoEcology Essays)

ISBN 978-3-510-65411-6, softcover, € 29,90

Information+🛒: www.schweizerbart.com/9783510654116

Order online & pay
with Visa/MC



As the proportion of people living in urban areas has been and still is increasing, the authors of ***Soils within Cities: Global approaches to their sustainable management*** undertake to shed light on the role and importance of soils in cities, and stresses the need to consider and manage this unique component of the urban ecosystem on our way to build sustainable cities.

Edited on behalf of the International Union of Soil Sciences, this book is the result of a joint effort of the international SUITMA (Soils of the Urban, Traffic, Mining and Military Areas) working group of IUSS.

Thirty-four short contributions comprehensively highlight **key aspects and characteristics of soils of the urban ecosystem** and the problems and challenges associated with them.

The authors lay out the **fundamentals of soil science applied to anthropized environments** (environments degraded by human activity), including composition, properties, and functions of soils of the urban environment, their pedogenic evolution, classification and mapping.

Furthermore, contributions present examples of **actual urban soil surveys conducted in the US, Poland, Germany and Russia**. Approaches to managing soils of the urban environment with focus on brownfields, soil sealing and urban agriculture, and the management of soil sealing are described.

A separate chapter is dedicated to the **ecosystem services urban soils can provide**, including sustaining and controlling water quality and quantity, providing C and P storage capacity, supporting biodiversity, pollution problems, and pointing out **ecosystem services that even contaminated industrial and mine soils are able to provide**.

"Soils within Cities" aims to expand our view of soils of our planet, and having them taken into consideration for human well-being. It provides city planners and managers with a special reference that can serve to offer citizens a better life in the long run.

1 Introduction

- 1.1 The challenges for soils in the urban environment (J.L. Morel, W. Burghardt, K.-H.J. Kim)
- 1.2 Activities of SUITMA: from origin to future (W. Burghardt, J.L. Morel, S.A. Tahoun, G.-L. Zhang, R.K. Shaw, A. Boularbah, P. Charzyński, C. Siebe, K.-H.J. Kim)

2 Composition, properties, and functions of soils in the urban environment

- 2.1 Main characteristics of urban soils (W. Burghardt)
- 2.2 Anthropogenic soil criteria, identification and classification of human-altered and human-transported materials (R.L. Riddle, M.J. Levin)
- 2.3 Urban soils contamination (S. Norra, Z. Cheng)
- 2.4 Functions of soils in the urban environment (A. Greinert)
- 2.5 Heat transfer in urban soils (M. Watanabe, S. Miyajima)
- 2.6 Hydraulic properties of urban soils (R. Horn, H. Fleige, I. Zimmermann, J. Doerner)

3 Pedogenic evolution of urban soils

- 3.1 Pedogenic processes in soils of urban, industrial, traffic, mining and military areas (H. Huot, G. Séré, L. Vidal-Beaudet, S. Leguédou, C. Schwartz, F. Watteau, J.L. Morel)
- 3.2 Specific properties of soils underneath pavement construction (M. Kawahigashi)
- 3.3 Micropedology of SUITMAs (F. Watteau, G. Séré, H. Huot, J.-C. Begin, C. Schwartz, R. Qiu, J.L. Morel)

- 4 **Classification of urban soils** (P. Charzyński, J.M. Galbraith, C. Kabala, D. Kühn, T.V. Prokofeva, V.I. Vasenev)



Schweizerbart Science Publishers

Johannesstrasse 3 A, 70176 Stuttgart, Germany. Tel.: +49 (711)351456-0 FAX: +49 (711)351456-99
 order@schweizerbart.de www.schweizerbart.com

Soils within Cities: Global approaches to their sustainable management

5 Urban soil surveys

- 5.1 The case of the New York City Soil Survey Program, United States (R.K. Shaw, J.T. Isleib)
- 5.2 The case of Germany (L. Makowsky, J. Schneider)
- 5.3 The case of Toruń, Poland (P. Charzyński, P. Hulisz)
- 5.4 The case of Moscow, Russia (T.V. Prokof'eva, I.A. Martynenko)

6 The management of soils in the urban environment

- 6.1 Soils in Green Infrastructure (P. Mankiewicz, T. Morin, Z. Cheng)
- 6.2 Waste capping systems processes and consequences for the long term impermeability (St. Beck-Broichsitter, H. Fleige, R. Horn)
- 6.3 Pedological Engineering for Brownfield reclamation (G. Séré, C. Schwartz, J. Cortet, S. Guimont, F. Wateau, M.-O. Simonnot, J.L. Morel)
- 6.4 Using wastes for fertile urban soil construction – The French Research Project SITERRE (L. Vidal-Beaudet, P. Cannavo, Ch. Schwartz, G. Séré, B. Béchet, M.Legret, P.-E. Peyneau, P. Bataillard, S. Coussy, O. Damas)

7 Soil sealing ways, constraints, benefits and management (W. Burghardt)

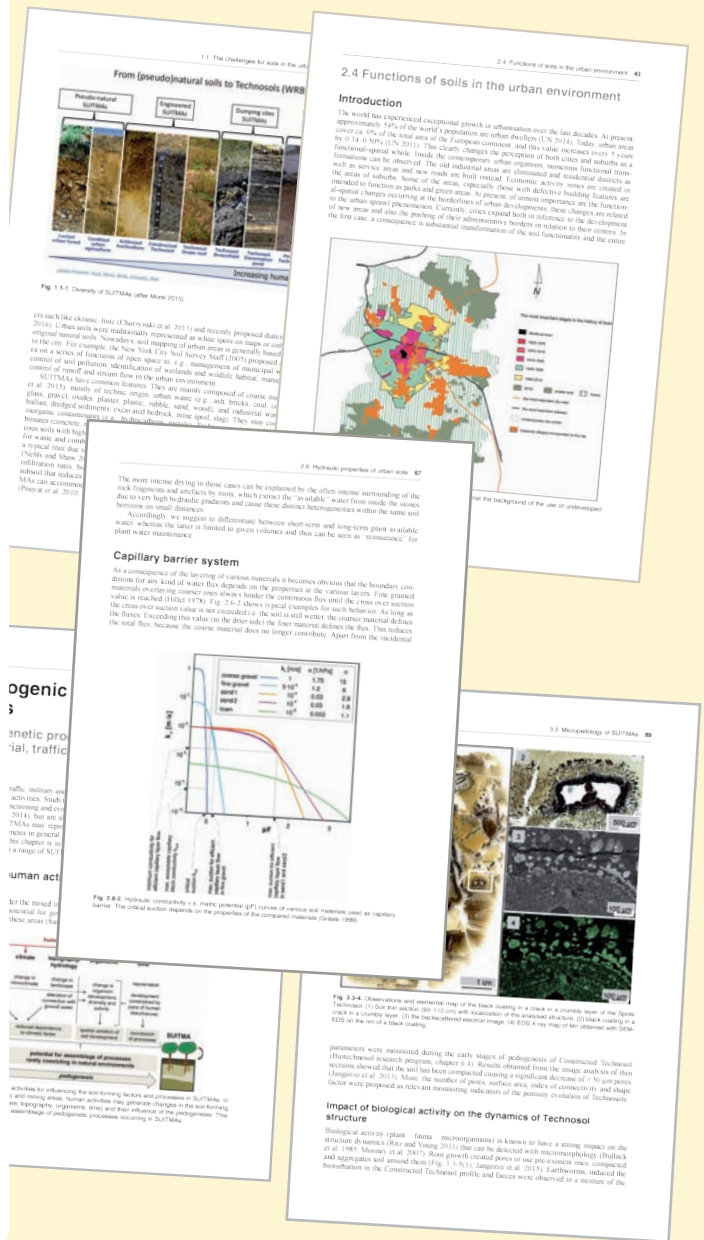
8 Urban agriculture

- 8.1 Urban agriculture and food security (R. Lal)
- 8.2 Garden soils in industrial countries (C. Schwartz, S. Joimel, P. Branchou, J.L. Morel, E.-D. Chenot, B. Béchet, J.N. Consalès)
- 8.3 Recovery of strategic metals from urban soils (M.-O. Simonnot, B. Laubie, J. Mocellin, G. Mercier, J.-F. Blais, J.L. Morel)

9 Ecosystem services provided by soils

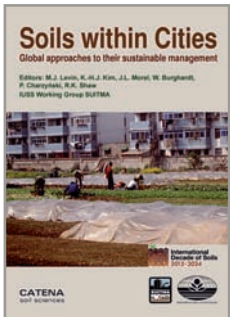
- 9.1 Urban soils are primary providers of ecosystem services (J.L. Morel, K. Lorenz, C. Chenu, G. Séré)
- 9.2 Regulating services provided by urban soils
 - 9.2.1 Carbon storage in urban soils (K. Lorenz, R.K. Shaw)
 - 9.2.2 Urban soils as phosphorus reservoir (K.-H.J. Kim, T. Nehls, C. Schwartz, J.L. Morel)
 - 9.2.3 Biodiversity (A. Auclerc)
 - 9.2.4 Ecosystem services provided by heavy metal contaminated soils in China (K. Ding, Q. Wu, H. Wei, W. Yang, G. Séré, S. Wang, G. Echevarria, Y. Tang, J. Tao, J.L. Morel, R. Qiu)
 - 9.2.5 Pollution mitigation: natural attenuation of organic pollutants (C. Leyval, A. Cébron, T. Beguiristain, P. Faure, S. Ouvrard)
- 9.3 Cultural services provided by urban soils
 - 9.3.1 Devil in the sand – the case of Teufelsberg Berlin and cultural ecosystem services provided by urban soils (G. Wessolek, A.R. Toland)
 - 9.3.2 Microstructural pictures: a tour in the thickness of SUITMA (F. Wateau, G. Sere, H. Huot, Ch. Schwartz, J.L. Morel)

10 Key initiatives on soil awareness by Global Soil Science Communities: World Soil Day, International Year of Soils 2015 and International Decade of Soils 2015–2024 (J. Yang, K.-H.J. Kim, S. Huber, R. Horn)



Order Form

I (we) hereby order from Schweizerbart Science Publishers, Johannesstr. 3 A, 70176 Stuttgart, Germany Tel.: +49(711) 351456-0, FAX: +49(711) 351456-99, www.schweizerbart.com, email: order@schweizerbart.de via:



Levin et al. (Eds.): **Soils within Cities.**
Global approaches to their sustainable management.
2017. IV, 253 pages ISBN 978-3-510-65411-6, softcover, € 29,90

Order online & pay with Visa/MC



Name: _____

Address: _____

Email: _____

Signature: _____

Date: _____