

CLEARINGHOUSE
中欧城市森林应对方案

A NOVEL TYPOLOGY FOR URBAN FORESTS AS NATURE-BASED SOLUTIONS



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- NBS are **multifunctional solutions to deliver benefits**, to address challenges using nature and natural processes (Sgrigna, 2021)
- **Umbrella term** touching upon and/or evolving previous, neighboring concepts (Almenar et al., 2021; Somarakis et al., 2019)

Ecological restoration

Ecosystem-based disaster risk reduction

Ecosystem Services

Green-Blue Infrastructure

Urban Forestry



Urban Forests as Nature-Based Solutions

Conceptual definition of the Urban Forest

The urban forest is **defined to comprise all trees in the urban area** (Konijnendijk, 2003). **This includes city parks and urban forests, gardens with trees, trees on streets or in public squares, and any other green spaces with trees, such as riparian corridors, rooftops, and nurseries** (Endreny, 2018; Davies et al., 2017).

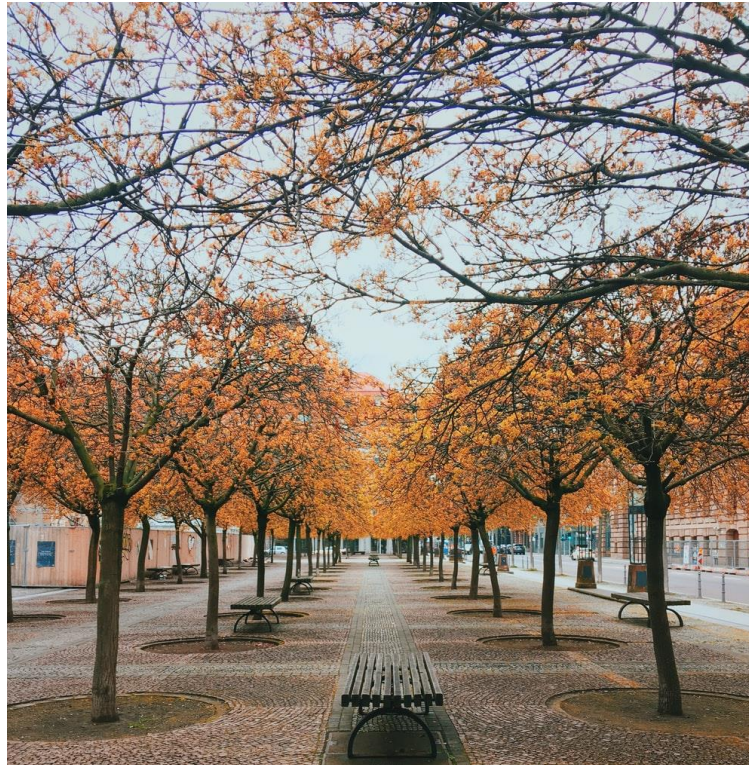
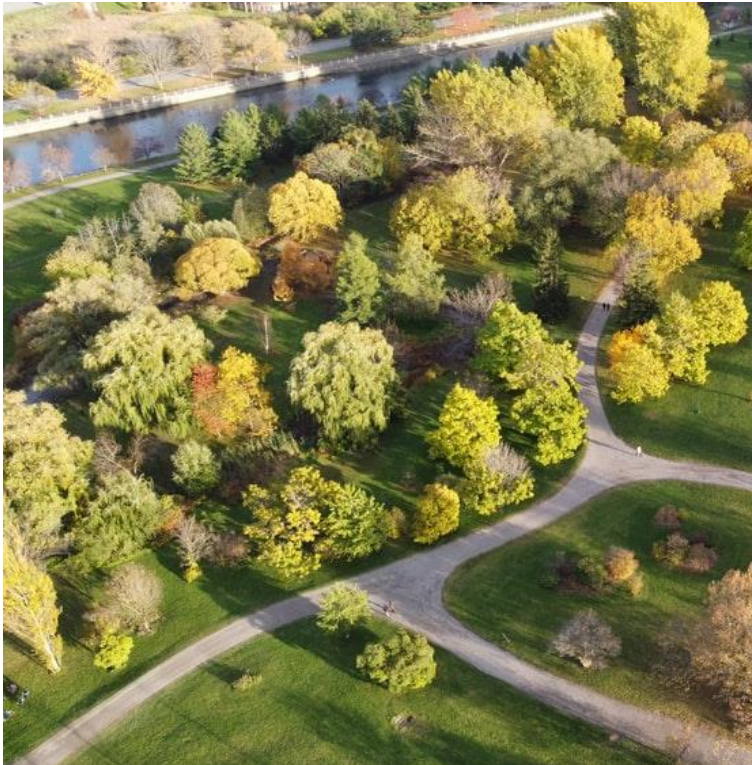




Two realizations of a common type of green element—green verge—exemplifying that **composition of green-blue infrastructure is a key aspect**. Whilst the example on the left cannot be considered an UF-NBS, the example on the right constitutes a part of the urban forest.

Previous research has emphasized that in urban systems, many different factors—particularly landscape and **urban patterns**, i.e., the urban morphology—**affect** local conditions, thereby **ecological functions and thus benefits** delivered by urban nature at multiple spatiotemporal scales

(e.g., Alberti, 2005; Alberti & Marzluff, 2004; Bierwagen, 2005; Holt et al., 2015; Koc et al., 2016; Pan & Du, 2020; Wang et al., 2019; Whitford et al., 2001)



Objectives of the UF-NBS typology

1,

Describe UF-NBS on the basis of characteristic **traits**, including, e.g.,

- ... **morphology** (form, composition);
- ... **spatial context** and arrangement (topology);
- ... **function**;
- ... **institutional characteristics** etc.

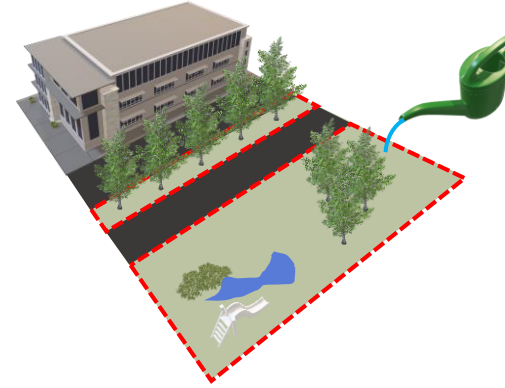
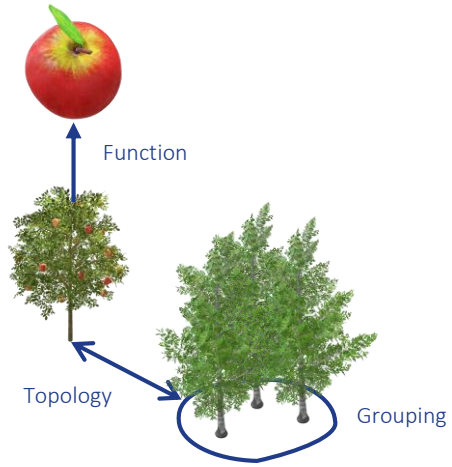
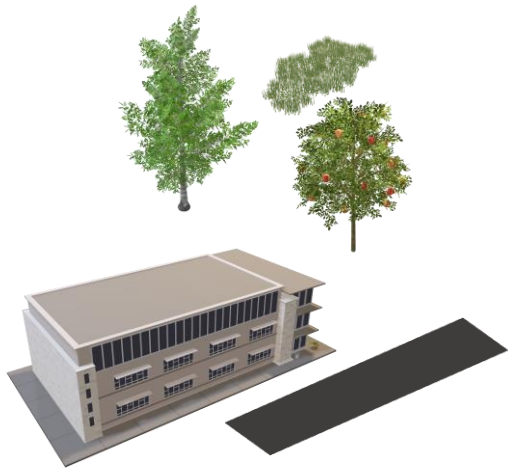
2,

Consider the notion of UF-NBS

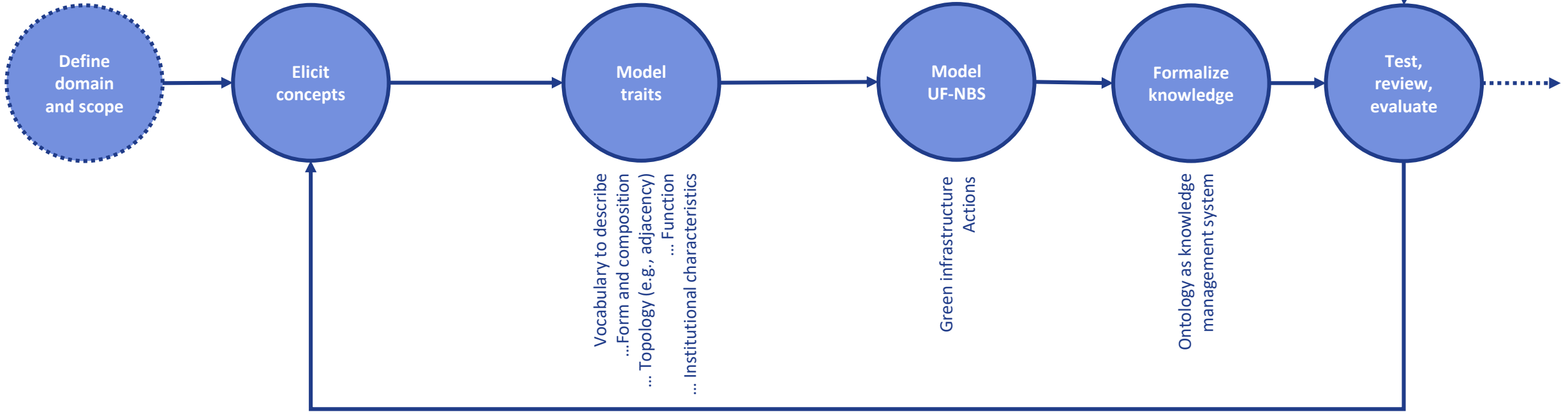
... **as spatial entites of the green** (green-blue) **infrastructure**, e.g., building on the NBS concept as defined by the European Commission (2015);

...**as actions/interventions**, e.g., NBS as conceptualized by IUCN.





Internal discussions,
Webinar & workshop



Semantic modelling as iterative process



UF-NBS Typology



Street trees
Tree alley
(Riparian/Peri-urban) Forest
Forest plantations
Orchards
Urban park
Gardens
Green verge/margin
Cemetery
Green roofs/walls




Afforestation
Reforestation
Restoration action
Monitoring action
Enrichment planting
Greening
Planting action
Tree pruning
Tree watering
Pest management




Conclusions

- **Opportunities for re-use** include, e.g.,
 - Building of UF-NBS inventories
 - Classification and assessment tools
 - Knowledge-based applications
 - Implementation of decision-support systems



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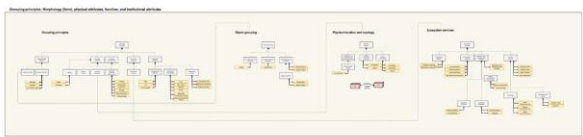
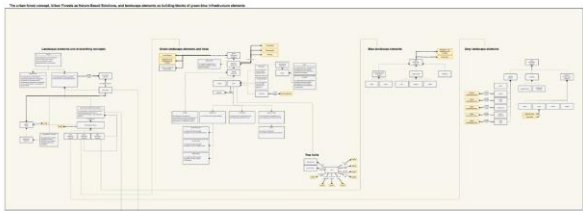
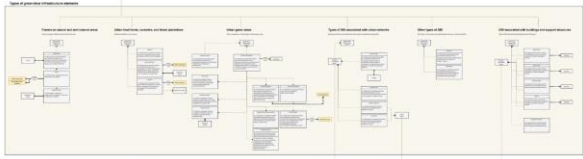
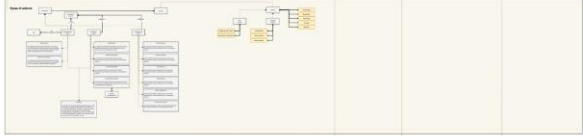



Outlining a semantics-based Sino-European UF-NBS typology (Deliverable 1.1)

Outlining a semantics-based Sino-European UF-NBS typology (Deliverable 1.1)

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Thank you for your attention.
