

Tree insect pests and pathogens: a global systematic review of their impacts in urban setting; Urban Ecosystems; Raum, S. et al., Technical University Munich / Imperial College London, susanne.raum@tum.de

Supplementary Information SI 2 – Search strings, inclusion / exclusion criteria, coding parameters

Table 1: Search strings used to access publications in bibliographic databases concerning impacts of urban tree insects / pathogens

Database	Search Terms
Scopus (Elsevier) (www.scopus.com/search/form.uri?display=basic#basic 12.11.2021 – access through TUM) 1997 hits	(TITLE-ABS-KEY ((urban OR city OR town OR peri-urban OR suburban OR metropolis) AND ("urban tree" OR "urban forest" OR "street tree" OR tree OR forest OR canopy) AND (pest OR insect OR disease OR pathogen) AND (impact OR effect OR risk OR threat OR mortality OR damage) AND NOT ("phylogenetic tree" OR "decision tree" OR "random forest" OR "forest regression" OR "family tree" OR "regression tree" OR rat OR bat OR rodent OR tick)
Web of Science Core Collection (Clarivate) (https://www-webofscience-com.iclibezp1.cc.ic.ac.uk/wos/woscc/summary (12.11.2021 – access through IC) 2229 hits	TS=((urban OR city OR cities OR town* OR peri-urban OR suburban OR metropol*) AND ("urban tree*" OR "urban forest*" OR "street tree*" OR tree* OR forest* OR canop*) AND (pest OR pests OR insect* OR disease* OR pathogen*) AND (impact* OR effect* OR risk* OR threat* OR mortal* OR damage*) NOT ("phylogenetic tree*" OR "decision tree*" OR "random forest*" OR "forest regression*" "regression tree*" OR "family tree*"OR rat* OR bat* OR rodent* OR tick*)
Science Direct** (Elsevier) (https://www-sciencedirect-com.iclibezp1.cc.ic.ac.uk/ 12.11.2021 – access through IC) 169 hits	(urban OR city) AND (tree OR forest) AND (pest OR disease) AND (impact OR effect OR risk)

*Indicates truncated term to access word derivatives

**Science Direct only allows a limited number of search terms

Table 2: Inclusion and exclusion criteria for document selection

Inclusion criteria	Exclusion criteria
Phase 1: initial keyword search	
All languages	None
Available in Scopus, Web of Science Core Collection, and Science Direct	Not available in Scopus, Web of Science Core Collection, Science Direct, and Science Direct
Primary research articles (peer-reviewed, scholarly journal publication)	Others (e.g., meetings, proceedings, theses, books, book chapters, reports, reviews)
Phase 2: keyword search in title and abstract review to select the studies on urban tree insects / pathogens	
Studies located in North America, South America, European region including Turkey and Russia, Asia, Africa, Oceania, Global	Unspecified
Studies located in urban, peri-urban, suburban, urban fringe, town, city, metropolis areas	Rural, villages, unspecified
Abstracts that use specified search terms or synonyms, including common and Latin names of cities, tree species and insect / pathogens	Abstracts that do not meet the two criteria: use of specific terms or synonyms, and explicit indication of the use of natural trees (e.g., bronchial tree, arterial tree)
Abstracts that did not use key terms from the above four groups, but clearly indicate studied system	
The article must have electronically available abstracts and full texts	
Phase 3: full-text review to select the studies whose impact and / risk description is sufficient for us to address the main research questions	
Apply content analysis techniques to the data to answer the research questions, using a set of predetermined coding parameters	

Table 3: Set of predetermined coding parameters

Category	Type of data
1. Bibliographic information	a. Authors' names b. Year of publication c. Title d. Publication source, i.e., journal e. Countries, i.e., study location
2. Information relating to the inclusion criteria	a. City, i.e., study location b. Insect / pathogen species c. Tree species affected d. Type and extend of impact e. Environmental / ecological impacts (qual / quan) f. Social impacts (qual / quan) g. Economic impacts (qual / quan) h. Relevance and / or magnitude of impact i. Recommendations
3. Information relating to the study	a. Aim of the study b. Methodology employed (e.g., experimental or observations) c. Size and type of study location d. Time / duration of study
4. Additional information	a. Symptoms of insect / pathogen outbreak b. Relevance and / or magnitude of impact c. Recommendations d. Comments