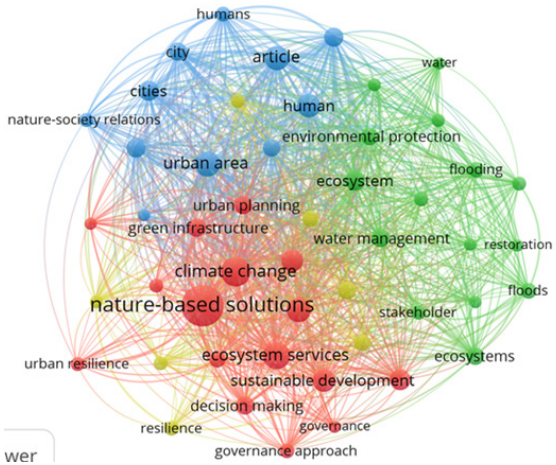
Material suplementar de: Brasileiro-Assing, A. C. B.; Guidolini, J. F.; Da Silva, A. G.; Marques, M. G. A.; Júnior, W. C. S.; Sinisgalli, P. A. A. Soluções baseadas na natureza: conjunto de práticas, teoria científica ou movimento de transformação? *Desenvolvimento e Meio Ambiente*, 63, 248-274, 2024. doi: http://dx.doi.org/10.5380/dma.v63i0.90137

ANEXO A – Clusters de palavras-chaves dos artigos pesquisados junto ao Scopus.



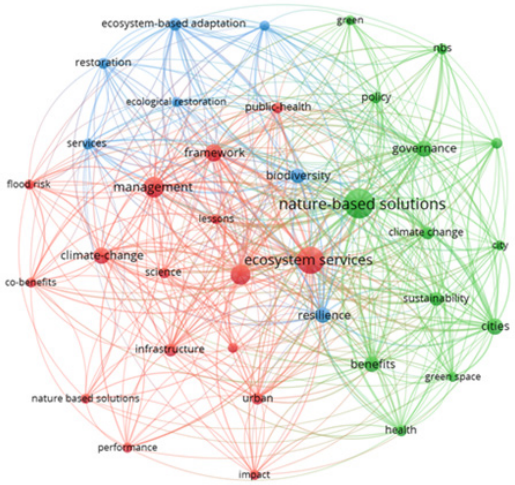
Fonte: Elaboração própria com uso do Vosviewer.

ANEXO B – Tabela de palavras-chaves com maior ocorrência e links dos clusters do Scopus.

Base de dados: Scopus			
Cluster	Palavra-chave	Ocorrência	Força total dos links
Verde	Climate change	45	263
	Ecosystem Service	32	231
	Ecosystem Services	37	208
Azul	Urban área	33	226
	Human	28	180
	Humans	12	100
Vermelho	Water management	17	96
	Flood	13	69
	Flooding	13	81
Amarelo	Adaptive management	17	124
	Risk assessment	14	77

FONTE: elaboração própria a partir dos resultados obtidos com o uso do Vosviewer.

ANEXO C – Clusters de palavras-chaves dos artigos pesquisados junto ao Web of Science.



FONTE: Elaboração própria com uso do Vosviewer.

ANEXO D – Tabela de palavras-chaves com maior ocorrência e links dos clusters do Web of Science.

Base de dados: Web os Science			
Cluster	Palavra-chave	Ocorrência	Força total dos links
Verde	Climate change	14	65
	Climate-change	23	69
	Governance	23	117
	Cities	22	100
	City	9	38
Azul	Biodiversity	17	81
	Resilience	19	86
	Ecosystem-based adaptation	13	77
Vermelho	Ecosystem service	59	219
	Green infrastructure	32	132
	Management	35	142

FONTE: elaboração própria a partir dos resultados obtidos com o uso do Vosviewer.

ANEXO E – Resultados da busca 2 para o *Scopus e Web of Science.*

Base de dados: Scopus		
Cluster	Palavra-chave	Número de artigos
Verde	Climate change /Ecosystem Services	79
Azul	Urban área / Human	59
Vermelho	Water management/ Flood	31
Amarelo	Adaptive management/ Risk assessment	27

Base de dados: Web of Science		
Cluster	Palavra-chave	Número de artigos
Verde	Climate change/ governance/ City	125
Azul	Biodiversity /resilience/ Ecosystem-based adaptation	81
Vermelho	Ecosystem service / Green infrastructure/Management	128

FONTE: elaboração própria.

ANEXO F – Grupo C de artigos.

N°	AUTOR(ES)*	ANO	TÍTULO	PALAVRA-CHAVE DO CLUSTER	TIPO DO ARTIGO	ÁREA CIENTÍFICA	OBJETIVO PRINCIPAL
1	Keesstra, S. *et al*	2018	The superior effect of nature based solutions in land management for enhancing ecosystem services	Climate -change / Ecosystem Services	Review	Environmental science	Review key examples to understand the superior effect of nature based solutions to enhance the sustainability of catchment systems by promoting desirable soil and landscape functions.
2	Kabisch, N. *et al*	2016	Nature-based solutions to climate change mitigation and adaptation in urban areas: Perspectives on indicators, knowledgegaps, barriers, and opportunities for action	Climate -change / Ecosystem Services	Article	Environmental science	Identify indicators for assessing the effectiveness of nature-based solutions and related knowledge gaps; and identify existing barriers and potential opportunities for increasing the scale and effectiveness of nature-based solution implementation.
3	Nesshover, C. *et al*.	2017	The science, policy and practice of nature-based solutions: An interdisciplinary perspective	Ecosystem Services/ Green infrastructure/ management	Article	Environmental sciences & ecology	Reflect on the implications for science, policy and practice of the recently introduced concept of Nature-Based Solutions (NBS), with a focus on the European context.
4	Raymond, C. M. *et al*.	2017	A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas	Climate -change / Ecosystem Services	Article	Envionmental science	Develop a holistic framework for assessing co-benefits (and costs) of NBS across elements of socio-cultural and socio-economic systems, biodiversity, ecosystems and climate.

5	Maes, J., Jacobs, S.	2017	Nature-Based Solutions for Europe's Sustainable Development	Climate -change / Ecosystem Services	Article	Agricultural and Biological Sciences	Outline the basics of a nature-based scenario for Europe, and proposes criteria to focus, guide, and evaluate the implementation of nature-based solutions, geared at production of wide socioeconomic benefits, provision of jobs, and low-carbon technology innovations
6	Faivre, N. *et al*.	2017	Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges	Climate -change / Ecosystem Services	Article	Biochemistry, Genetics and Molecular Biology	Definition of an R&I agenda for Nature-Based Solutions.
7	Liquete, C. *et al*	2016	Integrated valuation of a nature-based solution for water pollution control. Highlighting hidden benefits	Climate -change / Ecosystem Services	Article	Agricultural and Biological Sciences	Assess multiple benefits (environmental, social and economic) provided by a multi-purpose green infrastructure (a series of constructed wetlands surrounded by a park) in a peri-urban area, and compare it with the alternative grey infrastructure and with the previous situation (a poplar plantation).
8	Thorslund, J. *et al*	2017	Wetlands as large-scale nature-based solutions: Status and challenges for research, engineering and management	Climate -change / Ecosystem Services	Article	Environmental science	Systematically investigate if and to what extent research has addressed the large-scale dynamics of landscape systems with multiple wetlands, hereafter referred to as wetlandscapes.

9	Morris, R.L *et al*	2018	From grey to green: Efficacy of eco-engineering solutions for nature-based coastal defence	Climate -change / Ecosystem Services	Review	Environmental science	Assess the current evidence for the efficacy of nature-based vs. artificial coastal protection and discuss future research needs.
10	Escobedo, F. *et al*.	2019	Urban forests, ecosystem services, green infrastructure and nature-based solutions: Nexus or evolving metaphors?	Climate -change / Ecosystem Services	Review	Agricultural and Biological Sciences	nderstand the origin, trends, and evolution of these metaphors (Ecosystem services, Green infrastructure, and Nature-based solutions) and their institutional and contextual interpretations.
11	Zölch, T. *et al*	2017	Regulating urban surface runoff through nature-based solutions – An assessment at the micro-scale	Climate -change / Ecosystem Services	Article	Biochemistry, Genetics and Molecular Biology	Assess the green infrastructure's regulation potential for urban surface runoff
12	Lafortezza, R. *et al*	2018	Nature-based solutions for resilient landscapes and cities	Climate -change / Ecosystem Services	Review	Biochemistry, Genetics and Molecular Biology	Propose five specific challenges for thefuture of NBS
13	Panno, A. *et al*	2017	Nature-based solutions to promote human resilience and wellbeing in cities during increasingly hot summers	Climate -change / Ecosystem Services	Article	Biochemistry, Genetics and Molecular Biology	Understand whether, and how, spending time in urbangreen spaces, which can be considered as a specific kind of Nature-Based Solution (NBS), helps the recovery of cognitive resourcesand wellbeing.
14	Xing, Y., Jones, P., Donnison, I.	2017	Characterisation of nature-based solutions for the built environment	Climate -change / Ecosystem Services	Review	Environmental science	Develop a characterisation method of nature based solutions for designing and retrofitting in the built environment, and to facilitate knowledge transfer between disciplines and for design optimisation.

15	Gulsrud, N.M., Hertzog, K., Shears, I.	2018	Innovative urban forestry governance in Melbourne?: Investigating “green placemaking” as a nature-based solution	Climate -change / Ecosystem Services	Article	Biochemistry, Genetics and Molecular Biology	Contribute to the re-assesment of urban environmental governance by investigating how and to which extent the governance arrangements embedded within the UFS (urban forest strategy) draw strength from diverse perspectives and allow for institutional arrangements that support “situated” reflexive decision making and co-creation.
16	Albert, C. *et al*	2019	Addressing societal challenges through nature-based solutions: How can landscape planning and governance researchcontribute?	Climate -change / Ecosystem Services	Article	Environmental science	Explore how landscape planning and governance research can contribute to the identification, design and implementation of NBS.
17	Artmann, M., Sartison, K.	2018	The role of urban agriculture as a nature-based solution: A review for developing a systemic assessment framework	Climate -change / Ecosystem Services	Review	Environmental science	Address the literature gap on academic knowledge on urban agriculture (UPA)'s contribution to various societal challenges of urbanization.
18	Cariñanos, P.	2017	Assessing allergenicity in urban parks: A nature-based solution to reduce the impact on public health	Climate -change / Ecosystem Services	Article	Biochemistry, Genetics and Molecular Biology	Quantify the allergenicity of urban parks in a number ofSpanish cities
19	Triest, L.; Stiers, I.; Van Onsem, S.	2016	Biomanipulation as a nature-based solution to reduce cyanobacterial blooms	Climate -change / Ecosystem Services	Article	Agricultural and Biological Sciences	An overview on biomanipulation methods that were implemented to avoid or reduce cyanobacterial bloom development in ponds and lakes

20	Seddon, N. *et al*	2020	Understanding the value and limits of nature-based solutions to climate change and other global challenges	Climate -change / Ecosystem Services	Review	Agricultural and Biological Sciences	Assess the potential of NBS to protect us from climate change impacts while slowingfurther warming, supporting biodiversity and securing ecosystem services.
21	Calliari, E.; Staccione, A.; Mysiak, J.	2019	An assessment framework for climate-proof nature-based solutions	Climate -change / Ecosystem Services	Article	Environmental science	Develop a 'dynamic' assessment framework that explicitly accounts for the impact of climate change on the effectiveness of the proposed NBS.
22	Kalantari, Z. *et al*	2018	Nature-based solutions for flood-drought risk mitigation in vulnerable urbanizing parts of East-Africa	Climate -change / Ecosystem Services	Review	Environmental science	Understand and plan for the feedback mechanisms between population expansion and associated land-use changes and their impacts on ecosystem services.
23	Fink, H. S.	2016	Human-nature for climate action: Nature-based solutions for urban sustainability	Climate -change / Ecosystem Services	Article	Energy	Discuss the valuable role nature and nature-based solutions can play in addressing climate change at the city scale and its implications for broader sustainability.
24	Frantzeskaki, N. *et al*	2019	Nature-based solutions for urban climate change adaptation: Linking science, policy, and practice communities forevidence-based decision-making	Climate -change / Ecosystem Services	Article	Energy	Open a wider discussion on how cities can effectively mainstream nature-basedsolutions to mitigate and adapt to the negative effects of climate change and the future role of urban science in coproducing nature-based solutions.

25	Dorst, H. *et al*	2019	Urban greening through nature-based solutions – Key characteristics of an emerging concept	Climate -change / Ecosystem Services	Review	Energy	Assess the implications of this concept for discourse andpractice in urban greening.
26	Bush, J.; Doyon, A.	2019	Building urban resilience with nature-based solutions: How can urban planning contribute?	Climate -change / Ecosystem Services	Review	Urban studies	Shows a framework that guides the application of urban planning to nature-based solutions' implementation, by addressing key trade-offs across temporal, spatial, functional and social equity aspects
27	Rodrigo-Comino, J. *et al*	2020	The potential of straw mulch as a nature-based solution for soil erosion in olive plantation treated with glyphosate: A biophysical and socioeconomic assessment	Ecosystem Services/ Green infrastructure/ management	Article	Agricultural and Biological Sciences/ Agriculture and food security	Investigate (a) the use of straw as a mulch to reduce soil and water losses in olive plantation as an NBS and (b) the perception of farmers on the use of straw mulch and whether they see this as a sustainable strategy from a social and economic point of view
28	Davies, C.; Lafortezza, R.	2019	Transitional path to the adoption of nature-based solutions	Climate -change / Ecosystem Services	Article	Business	Help to overcome path dependence and lead to a greater use of nature-based solutions.
29	Lin, Z.; Qi, J.	2017	Hydro-dam – A nature-based solution or an ecological problem: The fate of the Tonlé Sap Lake	Climate -change / Ecosystem Services	Article	Environmental science	Know whether the hydro-dam is an optimized solution or a potential ecological problem (Tonlé Sap Lake)

30	Fernandes, JP (Fernandes, Joao Paulo); Guiomar, N (Guiomar, Nuno)	2018	Nature-based solutions: The need to increase the knowledge on their potentialities and limits	Ecosystem Services/ Green infrastructure/ management	Article	Environmental science	Analyse the concept of nature-based solutions as instruments to turn anthromes more nature-compatible, efficient, causing less degradation and developing new biodiversity hotspots
31	Hanson, H. I.; Wickenberg, B.; Alkan Olsson, J.	2020	Working on the boundaries—How do science use and interpret the nature-based solution concept?	Climate -change / Ecosystem Services	Article	Biodiversity conservation	Analyze how the NBS concept is used and interpreted in peer-reviewed scientific publications using the theoretical perspective of boundary objects, and discuss the future role of NBS in green space governance
32	Colléony, A.; Shwartz, A.	2019	Beyond assuming co-benefits in nature-based solutions: A human-centered approach to optimize social and ecologicaloutcomes for advancing sustainable urban planning	Climate -change / Ecosystem Services	Article	Urban studies	Integrate theories and methods from several disciplines to direct future interdisciplinary research to shed light on the mechanisms that drive the relationships between NbS and several outcomes.
33	Dushkova, D.; Haase, D.	2020	Not simply green: Nature-based solutions as a concept and practical approach for sustainability studies and planningagendas in cities	Climate -change / Ecosystem Services	Article	Urban studies	Examine how NBSs relate to existing concepts and sustainability in general as well as what implications can be drawn for NBS research, its applications, and policies.
34	Young, A. F. *et al*	2019	The role of nature-based solutions in disaster risk reduction: The decision maker's perspectives on urban resilience in SãoPaulo state	Climate -change / Ecosystem Services	Article	Urban studies	Explore how urban systems can be improved avoiding environmental degradation (i.e. waste ecosystem services and their benefits).

35	Wamsler, C. *et al*	2020	Environmental and climate policy integration: Targeted strategies for overcoming barriers to nature-based solutions andclimate change adaptation	Climate -change / Ecosystem Services	Article	Business, Management and Accounting	Examine the integration of nature-based approaches for climate change adaptation into municipalities' daily planning practices and associated governance.
36	Seddon, N. *et al*	2020	Global recognition of the importance of nature-based solutions to the impacts of climate change	Climate -change / Ecosystem Services	Article	Environmental science	Determine the extent to which nature-based solutions (NbS) are increasingly prominent in climate change policy by signatories of the Paris Agreement.
37	Groß, E. *et al*.	2018	Links between Nordic and Arctic hydroclimate and vegetation changes: Contribution to possible landscape-scale nature-based solutions	Climate -change / Ecosystem Services	Article	Agricultural and Biological Sciences	Investigate and compare hydroclimatic changes over a set of basins in the Nordic and northwestern region of America and compare them with changes in vegetation density, analyzed using the normalized difference vegetation index (NDVI) for three periods. : 1973-1978, 1993-1998 and 2013–2016.
38	Babí Almenar, J. *et al*	2021	Nexus between nature-based solutions, ecosystem services and urban challenges	Climate -change / Ecosystem Services	Review	Agricultural and Biological Sciences	Contribute to the knowledge about the causal relationships between NBS, ecosystem services (ES) and urban challenges (UC) T, systematically identifying the links (that is, qualitative links) between urban challenges, ecosystem services and Nature-Based Solutions, and describing plausible causal relationships.

39	Turconi, L. *et al*	2020	Implementation of nature-based solutions for hydro-meteorological risk reduction in small mediterranean catchments: Thecase of portofino natural regional park, Italy	Climate -change / Ecosystem Services	Article	Energy	Discuss how such solutions can be implemented in the context of the reduction of hydrometeorological risk in small Mediterranean basins with a strong tourist vocation.
40	Chausson, A. *et al*	2020	Mapping the effectiveness of nature-based solutions for climate change adaptation	Climate -change / Ecosystem Services	Article	Environmental science	Produce the first global systematic map of evidence on the effectiveness of nature-based interventions to address the impacts of climate change and hydrometeorological risks on people.
41	Lilli, M. A. *et al*	2020	Vision-based decision-making methodology for riparian forest restoration and flood protection using nature-based solutions	Climate -change / Ecosystem Services	Article	Energy	Design NBS for protection against erosion and flooding and to restore the riverside forest.
42	van den Bosch, M.; Ode Sang, Å.	2017	Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews	Human/ urban area	Article	Biochemistry, Genetics and Molecular Biology	Evaluate the evidence on the public health benefits of exposure to natural environments and to explore how this knowledge can be framed in the concept of NBS.
43	Kabisch, N.; van den Bosch, M.; Lafortezza, R.	2017	The health benefits of nature-based solutions to urbanization challenges for children and the elderly – A systematicreview	Human/ urban area	Article	Biochemistry, Genetics and Molecular Biology	Provide an overview of the current state of evidence on the relationship between the health of children and the elderly and urban green and blue spaces that can be considered nature-based solutions to the challenges induced by urbanization.

44	Vujcic, M. *et al*	2017	Nature based solution for improving mental health and well-being in urban areas	Human/ urban area	Article	Biochemistry, Genetics and Molecular Biology	Understand how to spend time and perform horticultural therapy in specially designed urban green environments can improve mental health.
45	Frantzeskaki, N.	2019	Seven lessons for planning nature-based solutions in cities	Human/ urban area	Article	Environmental science	Analyze fifteen cases of experiments with solutions based on nature in 11 European cities. From a cross-comparative analysis, we extracted seven comprehensive lessons related to all stages of proof of concept and implementation of nature-based solutions in cities
46	Song, Y. *et al*	2019	Nature based solutions for contaminated land remediation and brownfield redevelopment in cities: A review	Human/ urban area	Article	Environmental science	Summarizes the main features of NBS, the main technology options, case studies, limitations and future trends for the remediation of contaminated urban soils.
47	Cohen-Shacham, E. *et al*	2019	Core principles for successfully implementing and upscaling Nature-based Solutions	Human/ urban area	Review	Environmental science	Present the definition and the principles that support the NbS structure, recently adopted by the International Union for the Conservation of Nature.

48	Fan, P. *et al*	2017	Nature-based solutions for urban landscapes under post-industrialization and globalization: Barcelona versusShanghai	Human/ urban area	Article	Biochemistry, Genetics and Molecular Biology	Answering the following questions: i) What are the spatiotemporal changes in built urban land and green spaces in Barcelona and Shanghai? ii) What are the relations between economic development, exemplified by post-industrialization, globalization and urban green space?
49	Santoro, S. *et al*	209	Assessing stakeholders' risk perception to promote Nature Based Solutions as flood protection strategies: Thecase of the Glinščica river (Slovenia)	Human/ urban area	Article	Environmental science	Describe a methodology to improve the implementation of Nature Based Solutions, facilitating the generation, acquisition and diffusion of different perceptions of risk from stakeholders.
50	van der Jagt, A. P. N. *et al*	2017	Cultivating nature-based solutions: The governance of communal urban gardens in the European Union	Human/ urban area	Article	Biochemistry, Genetics and Molecular Biology	Identify which governance arrangements contribute to the provision of social resilience for community urban gardening (CUG). Through the EU GREEN SURGE project, we studied six CUG initiatives from five EU countries, representing different planning regimes and traditions.
51	Fini, A. *et al*	2017	Nature based solutions to mitigate soil sealing in urban areas: Results from a 4-year study comparing permeable,porous, and impermeable pavements	Human/ urban area	Article	Biochemistry, Genetics and Molecular Biology	Evaluate the effects of three floors, differing in water and gas permeability, in some physical parameters of the soil and in the growth and physiology of newly planted Celtis australis and Fraxinus ornus (types of trees) .

52	Marando, F. *et al*	2016	Removal of PM10 by forests as a nature-based solution for air quality improvement in the Metropolitan city of rome	Human/ urban area	Article	Agricultural and Biological Sciences	Evaluate the ability to remove seasonal particulate material (PM10) from perennial (broad and coniferous) and deciduous species.
53	Peter, B. G. *et al*	2017	Nature-based agricultural solutions: Scaling perennial grains across Africa	Climate-change/ Governance/ City	Article	Environmental sciences & ecology	Offer a nature-based solution for improving farm productivity and smallholder livelihoods in suboptimal agricultural areas.
54	Sarabi, S. E. *et al*	2019	Key Enablers of and Barriers to the Uptake and Implementation of Nature-Based Solutions in Urban Settings: A Review	Climate-change/ Governance/ City	Review	Science & technology	Define NBS as a theoretical concept.
55	Wendling, L. A. *et al*	2018	Benchmarking Nature-Based Solution and Smart City Assessment Schemes Against the Sustainable Development Goal Indicator Framework	Climate-change/ Governance/ City	Article	Environmental sciences & ecology	Assess performance and impact indicators within three robust assessments related to NBS and Smart City
56	Sahani, J. *et al*	2019	Hydro-meteorological risk assessment methods and management by nature-based solutions	Human/ urban area	Review	Agricultural and Biological Sciences	Discusses several methods used to evaluate HMR and its management through potential solutions based on nature (NBS).
57	Engström, R. *et al*	2018	Multi-functionality of nature-based and other urban sustainability solutions: New York City study	Human/ urban area	Article	Agricultural and Biological Sciences	Bring up a gap, which is the few comparative studies between the multifunctionality of NBS with conventional urban solutions that provide similar services. Therefore, the article analyzes these aspects, employing a simple accounting structure and attempts a consistent comparison between different resource systems.

58	Ferreira, V. *et al*	2020	Stakeholders' engagement on nature-based solutions: A systematic literature review	Human/ urban area	Review	Environmental science	Explor the current state of the art in relation to the participation of citizens and stakeholders in nature-based solutions (NBS).
59	Xiang, P.; Wang, Y.; Deng, Q.	2017	Inclusive nature-based solutions for urban regeneration in a natural disaster vulnerability context: A case study of Chongqing, China	Human/ urban area	Article	Sustainable Urban and Rural Development	Review the literature concerning urban regeneration and natural disaster vulnerability to discuss the complex mechanisms of the interactions between natural disaster and urban regeneration.
60	Blau, M. L. *et al*	2018	Urban River Recovery Inspired by Nature-Based Solutions and Biophilic Design in Albufeira, Portugal	Climate-change/ Governance/ City	Article	Environmental sciences & ecology	Demonstrate nature-inspired solutions in a recovery of a Southern European river that was canalised and transformed in culvert pipes.
61	Giordano, R. *et al*	2020	Enhancing nature-based solutions acceptance through stakeholders' engagement in co-benefits identification andtrade-offs analysis	Human/ urban area	Article	Urban studies	Demonstrate that accounting for the differences in stakeholders' perception of NBS co-benefits and values is the key for enhancing the NBS social acceptance and, thus, facilitate their implementation.

62	Wild, T. C.; Dempsey, N.; Broadhead, A.T.	2019	Volunteered information on nature-based solutions — Dredging for data on deculverting	Human/ urban area	Article	Urban studies	Present and discuss new findings on the practice of deculverting, and to investigate the application of user-generated content approaches to support NBS and GI research.
63	Gómez Martín, E. *et al*	2020	Using a system thinking approach to assess the contribution of nature based solutions to sustainable developmentgoals	Human/ urban area	Article	Environmental science	Recognize the trade-offs and synergies of the co-benefits associated with full potential of NBS.
64	Yu, J. *et al*	2020	Hotels' eco-friendly physical environment as nature-based solutions for decreasing burnout and increasing jobsatisfaction and performance	Human/ urban area	Article	Business	Investigates the effect of the hotel's nature-friendly environment on burnout, job satisfaction and job performance of hotel employees
65	Xie, L.; Bulkeley, H.	2020	Nature-based solutions for urban biodiversity governance	Human/ urban area	Article	Urban studies	Examine how cities are working with nature-based solutions for biodiversity.
66	Nguyen, T. P (Nguyen, T. P.)	2018	Melaleuca entrapping microsites as a nature based solution to coastal erosion: A pilot study in Kien Giang, Vietnam	Climate-change/ Governance/ City	Article	Oceanography	Demonstrate the effectiveness of microsites for restoring a mangrove coast

67	Gopalakrishna, V.; Ziv, G.; Hirabayashi, S.; Bakshi, B.R.	2019	Nature-Based Solutions Can Compete with Technology for Mitigating Air Emissions across the United States	Human/ urban area	Article	Environemntal science	Show that existing forest, grassland, and shrubland vegetation take up a significant portion of current U.S. emissions.
68	Dumitru, A.; Frantzeskaki, N.; Collier, M.	2020	Identifying principles for the design of robust impact evaluation frameworks for nature-based solutions in cities	Human/ urban area	Review	Environemntal science	Identifies and synthesizes both conceptual problems and empirical gaps in the comprehensive and robust evaluation of nature-based solutions in cities.
69	Augusto, B. *et al*	2020	Short and medium- to long-term impacts of nature-based solutions on urban heat	Human/ urban area	Article	Environemntal science	Assess the short-term and medium- to long-term impacts of selected NBS on urban heat, by analysing the changes in land use and population density and their effect on the surface energy balance.
70	Kooy, M.; Furlong, K.; Lamb, V.	2020	Nature based solutions for urban water management in Asian cities: Integrating vulnerability into sustainable design	Human/ urban area	Article	Environemntal studies	Understand how NBS principles related to natural processes and alternative water supplies might be directed toward mitigating environmental harm in circumstances where urban residents are already reliant on non-networked and 'natural' services for water supply

71	Zingraff-Hamed, A. *et al*	2020	Stakeholder Mapping to Co-Create Nature-Based Solutions: Who Is on Board?	Climate-change/ Governance/ City	Article	Environemntal studies	Reflect upon stakeholder constellations, as observed in two H2020 projects, namely PHUSICOS and RECONECT, and the relative methods developed to identify and initiate collaborative planning to co-design NBS.
72	Lafortezza, R.; Sanesi, G.	2019	Nature-based solutions: Settling the issue of sustainable urbanization	Adaptive management/ risk assessment	Article	Environemntal studies	Advance the current debate in favor of NBS by introducing a reference framework for NBS as the appropriate downstream response to co-developing sustainable cities challenged with the mounting pressures of urbanization. We propose an applicative framework for NBS using the structure of the DPSIR (Driving force–Pressure–State–Impact–Response) model, in conformity with European Community standards.
73	Ruangpan, L. *et al*	2020	Nature-based solutions for hydro-meteorological risk reduction: a state-of-the-art review of the research area	Adaptive management/ risk assessment	Review	Environemntal science	Provides a critical review of the literature concerning NBSs for hydro-meteorological risk reduction and identifies current knowledge gaps and future research prospects.
74	Short, C. *et al*	2019	Capturing the multiple benefits associated with nature-based solutions: Lessons from a natural flood managementproject in the Cotswolds, UK	Adaptive management/ risk assessment	Article	Environemntal studies	Outline the initial findings and the governance structure within a theoretical framework of comanagement and suggest how this type of framework is suitable for a range of nature-based solutions across Europe

75	Zwierzchowska, I. *et al*	2019	Introducing nature-based solutions into urban policy – facts and gaps. Case study of Poznań	Adaptive management/ risk assessment	Article	Urban studies	The study is aimed at 1) diagnosing of current position NbS in the tasks and directions of planning, strategic and programming documents; 2) characteristic of activities related to NbS according to the form of human-nature interaction; 3) determining the potential of including NbS in the local policy; 4) identifying the role of NbS in facing 4 main challenges in urban policy: resilience and climate change adaptation, health and well-being, social cohesion, economic development potential.
76	Mabon, L.	2019	Enhancing post-disaster resilience by 'building back greener': Evaluating the contribution of nature-basedsolutions to recovery planning in Futaba County, Fukushima Prefecture, Japan	Adaptive management/ risk assessment	Article	Environemntal studies	This paper contributes to understand the specific post-disaster resilience benefits which nature-based solutions provide through evaluation of how ecosystem approaches bring resilience benefits in Futaba County, Fukushima Prefecture, Japan, following the 2011 earthquake, tsunami and nuclear disaster.
77	Gómez Martín, E. *et al*	2020	An operationalized classification of Nature Based Solutions for water-related hazards: From theory to practice	Adaptive management/ risk assessment	Article	Multidisciplinary sciences	Present a comprehensive and easy-to-use classification scheme as a basis for assessing and evaluating NBS under different socio-economic and climatic scenarios.

78	Accastello, C.; Blanc, S.; Brun, F.	2019	A framework for the integration of Nature-based solutions into environmental risk management strategies	Adaptive management/ risk assessment	Article	Multidisciplinary sciences	Establish a conceptual framework for the development of integrated “grey-green” risk management strategies. These plans aim to include different risk management measures, either nature-based or artificial, alone or in combination, into an integrated strategy for land use planning at the landscape level. integration of different measures, with a special focus on protection forests and other Nature-based Solutions, into current risk management strategies.
79	Castelle, B. *et al*	2019	Nature-Based Solution along High-Energy Eroding Sandy Coasts: Preliminary Tests on the Reinstatement of Natural Dynamics in Reprofiled CoastalDunes	Biodiversity/ eba/ resilience	Article	Soil science	Provide new fundamental and practical insights into coastal dune resilience in order to improve coastal dune management strategies.
80	Sartison, K.; Artmann, M..	2020	Edible cities - An innovative nature-based solution for urban sustainability transformation? An explorative study of urban food production in Germancities	Biodiversity/ eba/ resilience	Article	Urban studies	Create an analytical framework, which aims at identifying and prioritizing 1) challenges that edible cities can contribute in the context of UST and 2) strategies for implementing and mainstreaming the edible city in the context of urban sustainability acceleration.
81	Kumar, P. *et al*	2020	Towards an operationalisation of nature-based solutions for natural hazards	Adaptive management/ risk assessment	Review	Environemntal studies	Analyse the published literature on NBS as a long-term measure for HMH mitigation and reduction, incorporating relevant indicators, policies and stakeholders for its effective implementation and operationalisation.

82	Ignatieva, M. *et al*	2020	Lawns in Cities: From a Globalised Urban Green Space Phenomenon to Sustainable Nature-Based Solutions	Biodiversity/ eba/ resilience	Article	Urban studies	Share a paradigm of nature-based solutions in the context of lawns, which can be an important step towards finding resilient sustainable alternatives for urban green spaces in the time of growing urbanisation, increased urban land use competition, various user demands and related societal challenges of the urban environment.
83	Augusto, B. *et al*	2020	Short and medium- to long-term impacts of nature-based solutions on urban heat	Biodiversity/ eba/ resilience	Article	Urban studies	Assess the short-term and medium- to long-term impacts of NBS on urban heat fluxes,
84	Mendes, R. *et al*	2020	The Institutionalization of Nature-Based Solutions-A Discourse Analysis of Emergent Literature	Biodiversity/ eba/ resilience	Article	Social sciences	Assess how the scientific literature regarding NBS is addressing institutional aspects and how it is constructing the NBS narrative.
85	Marchal, R. *et al*	2019	The (re) insurance industry's roles in the integration of nature-based solutions for prevention in disaster riskreduction-insights from a European Survey	Adaptive management/ risk assessment	Article	Environemntal studies	Investigates how the (re) insurance industry could support the transition from a paradigm focused on ex-post responses to ex-ante risk reduction measures including NBS, in line with the Sendai Framework.

86	Shah, M. A. R. *et al*	2020	A review of hydro-meteorological hazard, vulnerability, and risk assessment frameworks and indicators in thecontext of nature-based solutions	Adaptive management/ risk assessment	Review	Environemntal science	Explore the current state of knowledge in vulnerability and risk assessments (frameworks and indicators) to natural hazards in the context of NBS implementation, and propose a conceptual framework and a preliminary list of indicators for this purpose.
87	Zhang, J. *et al*	2019	Quantitative evaluation and optimized utilization of water resources-water environment carrying capacity based onnature-based solutions	Flood/ water management	Article	Environemntal science	Combines the regional WR-WECC evaluation of "water quality" and "water quantity", strengthens the real-time monitoring of the water quality dynamics of key sections, and improves the dynamic evaluation database of the water environment carrying capacity.
88	Wild, T.C.; Henneberry, J.; Gill, L.	2017	Comprehending the multiple 'values' of green infrastructure – Valuing nature-based solutions for urban watermanagement from multiple perspectives	Flood/ water management	Article	Economics, Econometrics and Finance	Compare and examine different attempts to evaluate the benefits of urban greening options and future development scenarios.
89	Boano, F. *et al*	2020	A review of nature-based solutions for greywater treatment: Applications, hydraulic design, and environmentalbenefits	Flood/ water management	Review	Engineering environmental	Understand if the application of NBS can represent a valid alternative to conventional treatment technologies, providing quantitative indications for their design.

90	Debele, S. E. *et al*	2019	Nature-based solutions for hydro-meteorological hazards: Revised concepts, classification schemes anddatabases	Flood/ water management	Review	Environemntal studies	Analyse and present a classification scheme, key features, and elements for designing nature-based solutions (NBS) and mitigating the adverse impacts of HMHs in Europe.
91	Boelee, E. *et al*	2017	Overcoming water challenges through nature-based solutions	Flood/ water management	Article	Environemntal science	Analyse the main relationships between biodiversity and agricultural, river and urban water management, with an emphasis on surface water.
92	Guerrero, P.; Haase, D.; Albert, C.	2018	Locating spatial opportunities for nature-based solutions: A river landscape application	Flood/ water management	Article	Water resources	Identify the spatial extent of existing and potential NBS locations and applies it across a case study in Germany.
93	Majidi, A. N. *et al*	2019	Planning nature-based solutions for urban flood reduction and thermal comfort enhancement	Flood/ water management	Article	Urban studies	Present a framework to maximize the effectiveness of Nature-Based Solutions (NBS) for flood risk reduction and thermal comfort enhancement.
94	Chen, E.; Bridgeman, T.	2017	The reduction of Chlorella vulgaris concentrations through UV-C radiation treatments: A nature-based solution(NBS)	Flood/ water management	Article	Environmental science	Quantify the effectiveness of UV-C radiation on the reduction of Chlorella vulgaris, a common algal species in the Great Lakes region.

95	Singh, A.; Sarma, A.K.; Hack, J.	2020	Cost-Effective Optimization of Nature-Based Solutions for Reducing Urban Floods Considering Limited SpaceAvailability	Flood/ water management	Article	Environmental science	Provide modelling solutions in optimizing the land-use and costs under EMPs to reduce flood risks in the Quebrada Aries watershed in the Municipality of Heredia in Costa Rica
96	Panagopoulos, Y.; Dimitriou, E.	2020	A large-scale nature-based solution in agriculture for sustainable water management: The Lake Karla Case	Flood/ water management	Article	Engineering environmental	Demonstrate a new nature-based solution (NBS) project in agriculture, the 'Karla' reservoir in Central Greece, a unique example at European scale, of a lake ecosystem which was dried and is now restored with the purpose to maximize the efficiency of water provision in agriculture and biodiversity enhancement.
97	Neumann, V. A.; Hack, J.	2020	A methodology of policy assessment at the municipal level: Costa Rica's readiness for the implementation ofnature-based-solutions for urban stormwater management	Flood/ water management	Article	Environmental science	Assess Costa Rica's municipal readiness in the implementation of NBS within the context of policy design and implementation.
98	Cáceres, L. *et al*	2018	From End-of-Pipe to Nature Based Solutions: a Simple Statistical Tool for Maximizing the Ecosystem ServicesProvided by Reservoirs for Drinking Water Treatment	Flood/ water management	Article	Water resources	Study the relationship between raw water quality coming from a water supply reservoir and the use of reagents in the associated WTP

99	Nelson, D. R. *et al*	2020	Challenges to realizing the potential of nature-based solutions	Flood/ water management	Article	Environmental science	Explor fundamental challenges to realizing the potential of nature-based solutions, including issues of participation and equity, economic valuation, scalar mismatches, the integration of natural and built infrastructure, and governance.
100	Everard, M. *et al*	2020	Can nature-based solutions contribute to water security in Bhopal?	Flood/ water management	Article	Agricultural and Biological Sciences	Develop a basic understanding of trends in the ecology, water quality and uses of Bhojtal, discussing its implications for the long-term well-being of the Bhopal city region.

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FONTE: elaboração própria.

ANEXO G – Grupo D de artigos.

n°	Autor(es) Título	Soluções Baseadas na Natureza (adotadas ou mencionadas)	Problema para qual a solução está voltada	Conceito dado à SBN
1	Keesstra, S. *et al* (2018) The superior effect of nature based solutions in land management for enhancing ecosystem services	Landfill, creation of new area for the river, organic farming, rewilding, agroforestry, grass strips and soil or stone bunds, blue-green infrastructure.	Land and water management	Nature based solutions (NBSs) form a cost-effective long term solution for mitigating and restoring land affected by degradation processes.
2	Kabisch, N. *et al*. (2016) Nature-based solutions to climate change mitigation and adaptation in urban areas: Perspectives on indicators, knowledgegaps, barriers, and opportunities for action	Green roofs and walls; parks and street trees; bioswales, rain gardens, and roof-greening; green roofs and façades.	Climate-change mitigation and adaptation	The concept of nature-based solutions (NbS) is one of several concepts that promote the maintenance, enhancement, and restoration of biodiversity and ecosystems as a means to address multiple concerns simultaneously. Nature-based solutions can be characterized as "[...] the use of nature in tackling challenges such as climate change, food security, water resources, or disaster risk management, encompassing a wider definition of how to conserve and use biodiversity in a sustainable manner" (Balian *et al*. 2014:5).
3	Nesshover, C. *et al* (2017) The science, policy and practice of nature-based solutions: An interdisciplinary perspective	Ponds, wetlands, and leaky barries.	N.S	Nature-based solutions (NBS), broadly defined as solutions to societal challenges that are inspired and supported by nature. NBS is understood as actions that 'aim to help societies address a variety of environmental, social and economic challenges in sustainable ways. They are actions which are inspired by, supported by or copied from nature' (European Commission, 2015c, p. 5).
4	Raymond, C. M. *et al* (2017) A framework for assessing and implementing the co-benefits of nature-based solutions in urban areas	Roof-greening, solar roofs, urban food gardens, water reticulation systems.	Climate resilience, health and well-being.	NBS can be defined as "solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience" (European Commission, 2016, p. 1).

5	Maes, J.; Jacobs, S. (2017) Nature-Based Solutions for Europe's Sustainable Development	Agroecology	tradeoff between economic growth and sustainability.	Authors' concept: we define nature-based solutions as any transition to a use of ecosystem services with decreased input of non-renewable natural capital and increased investment in renewable natural processes. Concept mentioned by the authors: living solutions inspired by, continuously supported by and using nature, which are designed to address various societal challenges in a resource-efficient and adaptable manner and to provide simultaneously economic, social, and environmental benefits (see also European Commission 2015a).
6	Faivre, N. *et al*. (2017) Nature-Based Solutions in the EU: Innovating with nature to address social, economic and environmental challenges	Pocket parks, urban agriculture, street trees, green roofs, community garden, natural water retention, sustainable urban drainage, biosequestration, afforestation, green corridors, natural coastal protection (semi-fixed dunes) floodplain restoration.	Social, economic and environmental challenges (jobs and growth, energy and climate action).	Nature-Based Solutions (NBS) is a concept that builds on and supports other closely related concepts such as the ecosystem approach (Eggermont et al., 2015). Nature-Based Solutions also play a critical role in promoting 'transitions' from a resource-intensive growth model towards a more resource-efficient, inclusive and sustainable growth model. The European Commission defines Nature-Based Solutions as a way to address societal challenges with ‘solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience. Such solutions bring more, and more diverse, nature and natural features and processes into cities, landscapes and seascapes, through locally adapted, resource-efficient and systemic interventions’ (EC, 2016a).

7	Liquete, C. *et al*. (2016) Integrated valuation of a nature-based solution for water pollution control. Highlighting hidden benefits	Wetlans sunrrounded by green areas (parks).	Water pollution control.	Nature-based solutions are defined as actions inspired by, supported by or copied from nature that help societies address a variety of environmental, social and economic challenges in sustainable ways (DG Research and Innovation, 2015). Maes and Jacobs (2015) define nature-based solutions as any transition to a use of ecosystem services with decreased input of non-renewable natural capital and increased investment in renewable natural processes.
8	Thorslund, J. *et al* (2017) Wetlands as large-scale nature-based solutions: Status and challenges for research, engineering and management	Wetlands	Carbon sequestration, water quality protection, coastal protection, droundwater level, soil moisture regulation, flood regulation and biodiversity support.	Nature-based solutions (NBS) is a newly coined umbrella concept (Albert et al., 2017). It relates to the use of nature for addressing a range of global environmental and social challenges, such as climate change and pollution of water systems (Cohen-Shacham et al.,2016). NBS are determined by the natural functions of ecosystems, which for example includes natural attenuation processes that frequently involve microbial removal of contaminants fromgroundwater (Scow and Hicks, 2005).
9	Morris, R. L *et al* (2018) From grey to green: Efficacy of eco-engineering solutions for nature-based coastal defence	Restored or created coral reefs, dunes, macroalgae, mangrove, oyster reef, saltmarsh, and seagrass.	Erosion and flooding along coastlines.	N.P
10	Escobedo, F. *et al* (2019) Urban forests, ecosystem services, green infrastructure and nature-based solutions: Nexus or evolving metaphors?	Urban trees/forests (treed parks, wetlands), forest, trees, and vegetation.	Issues affecting urban areas throughout the world.	In addition to being a climate change solution, NBS is also a means of creating jobs and growth [as] part of a greener economy. The most recent NBS paradigma could be construed as the most recently developed extension of the previous metaphors by moving decidedly into a more transdisciplinary knowledge-exchange domain while providing for more pragmatic solutions.

11	Zölch, T. *et al* (2017) Regulating urban surface runoff through nature-based solutions – An assessment at the micro-scale	Urban green insfrastructure (trees and green roofs).	Urban surface runoff	NBS can be defined as solutions using nature and ecosystem services to provide economic, social as well as environmental benefits (EC, 2015; Maes and Jacobs, 2015) and span from natural ecosystems to novel ecosystems that are either intentionally or unintentionally created by humans (Eggermont et al., 2015).
12	Lafortezza, R. *et al* (2018) Nature-based solutions for resilient landscapes and cities	Urban agriculture for local food production and social cohesion; green roofs for climate adaptation; regeneration of abandoned industrial land by afforestation or park creation; rain gardens for stormwater regulation; green spaces for promoting human health; and the use of permeable surfaces and vegetation in urban settings.	Urban problems	The Expert Group delivered its report in 2015 and defined NBS as "living solutions inspired by, continuously supported by and using nature, which are designed to address various societal challenges in a resource-efficient and adaptable manner and to provide simultaneously economic, social and environmental benefits".
13	Panno, A. *et al* (2017) Nature-based solutions to promote human resilience and wellbeing in cities during increasingly hot summers	Urban green area (park)	Urban heat island	The NBS approach offers sustainable solutions to cope with the challenge of climate change in urban areas. NBS can reduce greenhouse gas emissions and help to conserve and expand carbon sinks through the related ecosystem services. NBS can include several strategies, such as the conversion of abandoned land into urban farms and community gardens, or the regeneration of postindustrial sites through the bioremediation of toxic soils and subsequent transformation into green spaces (European Commission, 2015).
14	Xing, Y.; Jones, P.; Donnison, I. (2017) Characterisation of nature-based solutions for the built environment	Indoor plants, green roofs, green walls, green & blue landscaping.	Pressures on the natural environmental due to rapid urbanization.	N. P

15	Gulsrud, N. M.; Hertzog, K.; Shears, I. (2018) Innovative urban forestry governance in Melbourne?: Investigating “green placemaking” as a nature-based solution	Urban green infrastructure (green roofs, walls, and facades).	climate change and ecological gentrification.	N.P
16	Albert, C. *et al* (2019) Addressing societal challenges through nature-based solutions: How can landscape planning and governance research contribute?	Revitalizing floodplains, protecting and establishing wetlands, and better adapting land-uses to site conditions within the watershed.	Societal challenges	We define NBS as actions that alleviate a well-defined societal challenge (challenge-orientation), employ ecosystem processes of spatial, blue and green infrastructure networks (ecosystem processes utilization), and are embedded within viable governance or business models for implementation (practical viability). IUCN (Cohen-Shacham et al., 2016) defined NBS as “actions to protect, sustainably manage and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits”. The European Commission (EC) has proposed a slightly different definition of NBS as “actions which are inspired by, supported by or copied from nature.
17	Bosch, M.; Ode Sang, Å. (2017) Urban natural environments as nature-based solutions for improved public health – A systematic review of reviews	Green places like parks, ecosystem restoration, greening of gray surfaces, afforestation, natural flood control, and constructed wetlands.	Human health and wellbeing	“Nature-based solutions (NBS) are actions which are inspired by, supported by, or copied from nature”, and that are designed to address a range of environmental challenges in an efficient and adaptable manner, while at the same time providing economic, social, and environmental benefits (ECDG, 2015).

18	Kabisch, N.; van den Bosch, M.; Lafortezza, R. (2017) The health benefits of nature-based solutions to urbanization challenges for children and the elderly – A systematicreview	Urban green and blue spaces .	Children and elderly health. More specific: effect on birth, Asthma and allergic sensitization, mental health, overweight, physical activity, cardiovascular problems, depression and cancer.	The provision of ecosystem services through urban green and blue spaces can be seen as nature based solutions (NBS), contributing to tackle several of the challenges urban planners and decision-makers face in times of urbanization and climate change (McHale et al., 2015). As 'actions inspired by, supported by or copied from nature' (European Commission, 2016), NBS are receiving increasingly greater attention and being invested in by the European Union's Horizon 2020 program in order to address these challenges (Maes and Jacobs, 2017).
19	Vujcic, M. *et al*. (2017) Nature based solution for improving mental health and well-being in urban areas	Horticulture therapy	Mental health and well-being in urban areas	N.P
20	Frantzeskaki, N. (2019) Seven lessons for planning nature-based solutions in cities	Constructed wetland, urban agriculture, bioremediation ponds; pocket park; linear park, green waterfront; urban park; Urban agriculture, green roofs; linear urban waterfront park; bioswells, raingardens, nature-based playgrounds; and nature-based playground.	N.S	Nature-based solutions are inspired by nature, use nature and/or are supported by nature. Specifically, nature-based solutions have been defined as living solutions underpinned by natural processes and structures that are designed to address various environmental challenges while simultaneously providing multiple benefits to economy, society and ecological systems (European Commission, 2016).

21	Song, Y. *et al* (2019) Nature based solutions for contaminated land remediation and brownfield redevelopment in cities: A review	Phytoremediation, constructed wetland, bioremediation, green synthesis for nanoremediation and stabilization with biochar, mulch and compost.	Soil and water of brownfields.	NBS is an umbrella concept that can be used to capture nature based, cost effective and eco-friendly treatment technologies, as well as redevelopment strategies that are socially inclusive, economically viable, and with good public acceptance.
22	Cohen-Shacham, E. *et al* (2019) Core principles for successfully implementing and upscaling Nature-based Solutions	N.A	N.S	NBS are "actions to protect, sustainably manage, and restore natural or modified ecosystems, that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits" (Cohen-Shacham et al., 2016); and NbS are "solutions inspired and supported by nature, designed to address societal challenges which are cost-effective, simultaneously provide environmental, social and economic benefits, and help build resilience" (European Commission, 2016; Raymond et al., 2017a).
23	Fan, P. *et al* (2017) Nature-based solutions for urban landscapes under post-industrialization and globalization: Barcelona versus Shanghai	Parks, refurbishing old parks, forest parks, creation of a model ecological island, waterfront development, natural wetlands, green corridors, urban gardens, living roofs, gardens on vacant spaces, green belt, wedges, and green nucleus.	N.S	"living solutions inspired by, continuously supported by and using nature, which are designed to address various societal challenges in a resource-efficient and adaptable manner and to provide simultaneously economic, social, and environmental benefits" (European Commissions, 2015).

24	Santoro, S. *et al* (2009) Assessing stakeholders' risk perception to promote Nature Based Solutions as flood protection strategies: Thecase of the Glinščica river (Slovenia)	Renaturing urban water bodies; Reduce canalization of the urban water bodies; Re-vegetation in urban areas; Re-establishing meandering and oxbows; Restore riparian vegetation; Construction of dry retention areas on flood plains; Create artificial water bodies for short term water storage; Use of balancing ponds to release water slowly; Forest management; Wetlands restoration; Stopping water transportation of trunks, branches and leaves; Preventing new erosion ditches in upper parts of river basin; Preventing bank erosion with short and forest vegetation; Removing cross wise barriers/dams; Renaturation of waterbodies; Rerouting floods to wetlands; Opening natural flood plains; Preventing new build up areas on flood plains; Removing buildings from flood plains where possible.	Flood	N.P
25	Jagt, A. P. N. *et al* (2017) Cultivating nature-based solutions: The governance of communal urban gardens in the European Union	Communal urban gardens	Urban resilience	We define NbS as multifunctional 'green' interventions delivering upon the social, economic and environmental pillars of sustainable development (Eggermont *et al*., 2015; European Commission, 2015). NbS thus per definition provide adaptive management approaches dealing with complex socio-ecological challenges (Nesshöver *et al*., 2016).
26	Lafortezza, R.; Sanesi, G. (2019) Nature-based solutions: Settling the issue of sustainable urbanization	Trees, canopy cover and biomass of city trees, and "room for the river".	Climate change and sustainability in urban areas.	Nature-based solutions (NBS) – measures that mimic the complex features and processes of Natural ecosystems – for local/regional city authorities and other policy and decision makers to increase climate resilience and address inclusive urban regeneration in cities.

27	Ruangpan, L. *et al* (2020) Nature-based solutions for hydro-meteorological risk reduction: a state-of-the-art review of the research area	Porous pavement, green roofs, rain gardens, vegetated swales, rainwater harvesting, dry detention pond, detention pond, bio-retention, infriltration trench, swale, and trees.	Hydro-meteorological risk reduction.	A NBS is a term used for innovative solutions that are based on natural processes and ecosystems to solve different types of societal and environmental challenges. The European Commission defines nature-based solutions as "Solutions that aim to help societies address a variety of environmental, social and economic challenges in sustainable ways. They are actions inspired by, supported by or copied from nature, both using and enhancing existing solutions to challenges as well as exploring more novel solutions. The IUCN has proposed a definition of NBSs as "actions to protect, sustainably manage and restore natural and modified ecosystems that address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits" (Cohen- Shacham *et al*., 2016). A NBS is a collective term for innovative solutions to solve different types of societal and environmental challenges, based on natural processes and ecosystems. Therefore, it is considered to be an "umbrella concept" covering a range of different ecosystem-related approaches and linked concepts (Cohen-Shacham *et al*., 2016; Nesshöver *et al*., 2017) that provides an integrated way to look at different issues simultaneously.

28	Short, C. *et al* (2018) Capturing the multiple benefits associated with nature-based solutions: Lessons from a natural flood managementproject in the Cotswolds, UK	Large woody debris (LWD) dams, dry stone wall deflector, spring-fed and solar cattle drinking troughs, large earth bunds, small earth bunds/check dams, gully systems stuffed with wood, streamside fencing, large dry pond, trees planted, and many minor interventions such as diverting water away from tracks.	Flood	Nature-based solutions (NBSs) are the latest in a number of terms that are beginning to influence policy debates on urban regeneration (Marton-Lefèvre 2012; Kabisch *et al*., 2016), responses to climate change (Cohen-Shacham, Walters, Janzen, & Maginnis, 2016; European Environment Agency, 2017), and sustainable development (Maes & Jacobs, 2015) as well as nature conservation (Eggermont *et al*., 2015; International Union for Conservation of Nature [IUCN], 2016). NBS is considered to be a broad definition covering the conserving, enhancing, and using of biodiversity by society in a sustainable manner, while also integrating social factors such as socio-economic development and effective governance (Balian, Eggermont, & Le Roux, 2014; Cohen-Shacham *et al*., 2016). The EC (2015) defines NBS to societal challenges as 'solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience.' IUCN who views NBS as a way of applying the strength, resources, and abundance of nature to global environmental and social challenges (IUCN, 2016). The IUCN (2016) defines NBS as actions to protect, sustainably manage, and restore natural or modified ecosystems, which address societal challenges effectively and adaptively, simultaneously providing human well-being and biodiversity benefits.
29	Zhang, J. *et al* (2019) Quantitative evaluation and optimized utilization of water resources-water environment carrying capacity based on nature-based solutions	N.A	Water quality and availability.	N.P

30	Wild, T. C., Henneberry, J.; Gill, L. (2017). Comprehending the multiple 'values' of green infrastructure – Valuing nature-based solutions for urban water management from multiple perspectives	Green spaces, greenways, green infrastructure, forest, space for water, parks.	Urban water management	N.P

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FONTE: elaboração própria.