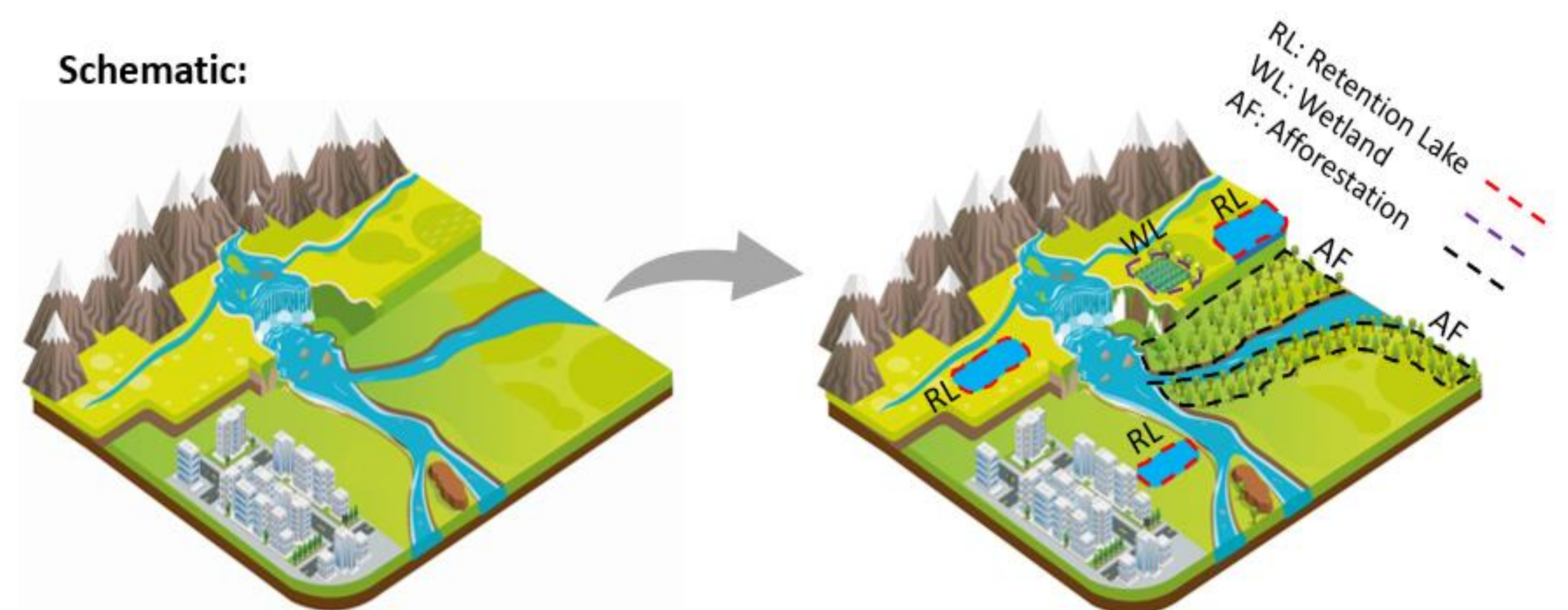
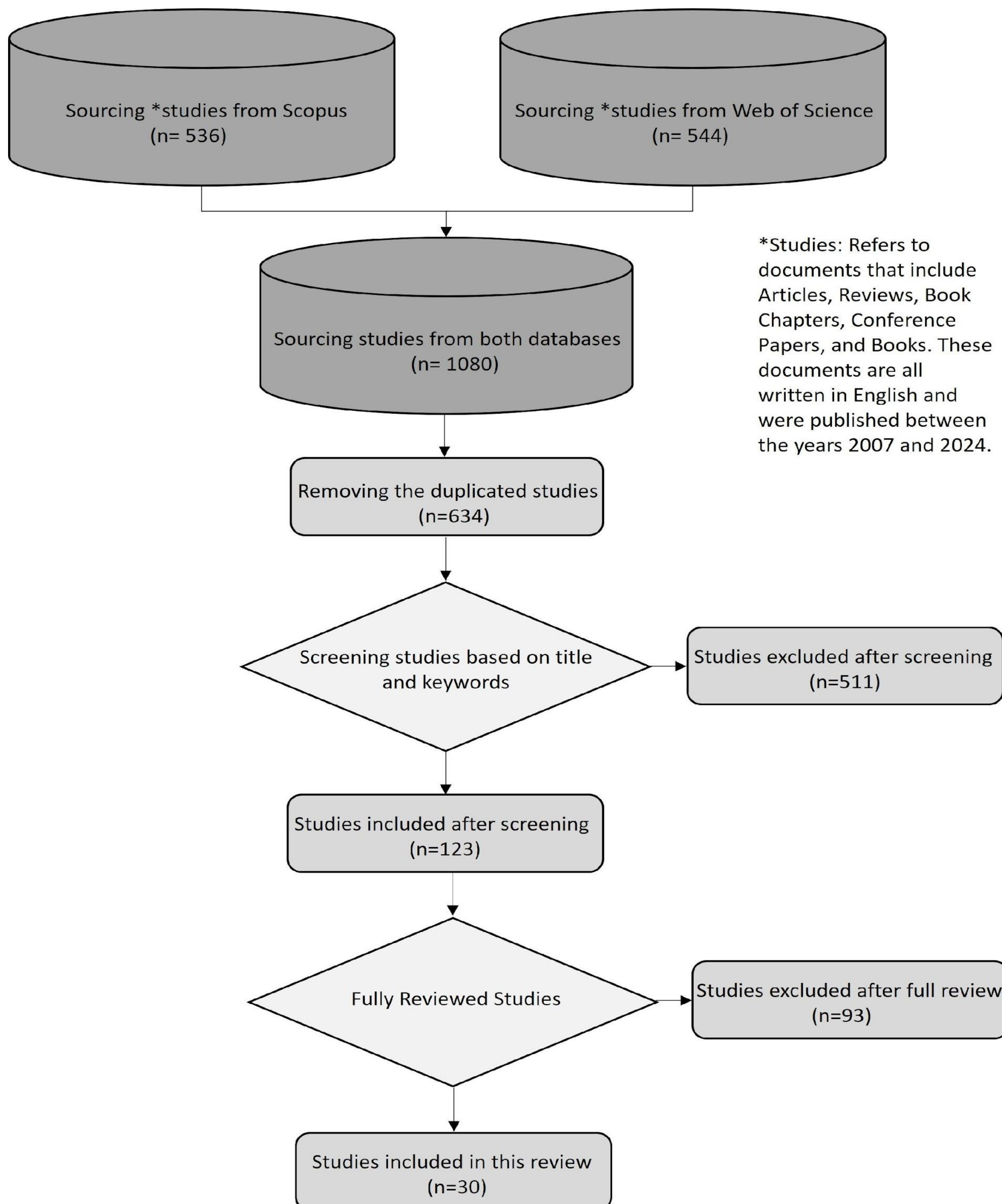


Assessing Nature-Based Solutions using the HEC-RAS modelling system: a review

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Nature-based solutions (NBS) are increasingly recognised for mitigating flood risk while providing multiple benefits such as enhanced biodiversity, and improved water quality. Hydraulic modelling is an essential tool for evaluating and optimising the flood risk regulating service of NBS. Yet, there is no standardised approach for adjusting the parameters in the hydraulic models to best represent NBS interventions, leading to inconsistent implementations.

This study conducted a literature review of 1,080 publications from Scopus and Web of Science and selected 30 key-studies that utilise HEC-RAS to model NBS interventions. By collating and synthesising the various approaches documented in these studies, a consolidated resource for researchers and practitioners is provided. This synthesis offers practical recommendations for the application of different NBS interventions in hydraulic modelling and outlines the corresponding parameter ranges to consider.