# Nature-based Solutions to address climate and societal challenges in small and medium-sized islands

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# INTRODUCTION



Nature-based Solutions (NbS) despite growing policy interest, empirical studies on the effectiveness of NbS in SMI remain scattered, with few systematic syntheses, underscoring the need for further research and data-driven analysis. Key knowledge and practice gaps related to the understanding of NbS principles and cost-effectiveness, and their adaptation to the local social-ecological-technological conditions continue to limit uptake of NbS globally and regionally, which challenges are expected to be more strongly felt in SMIs (Grace et al., 2021; Balzan et al., 2022).

To fill this gap, within the EU-funded COST Action CA21158 SMILES, we have developed an open-access and easily usable global compendium of SMI NbS.



### DATA EXTRACTION, SYNTHESIS and INTEGRATION

- studies in 1st screening
- QA/QC)
- Data synthesis and integration

Small and medium-sized islands (SMI) are widely recognised as ecologically significant yet highly vulnerable regions. Rising sea levels and warming temperatures, changes in precipitation patterns and the intensification of extreme events, together with unsustainable development practices, threaten not only their natural resources but also



## ANALYSIS

Created data extraction forms for data gathering from selected

~10% of the selected scientific literature and all case-studies extracted from grey literature were reviewed by 2 reviewers (final



Multiple SDGs were addressed, with some receiving greater focus







## **PICO Research Question**

In SMI (P), how has the implementation of NbS (I) been conducted and documented in existing peer-reviewed and grey literature across different island types and regions (C), and what are the key strengths and knowledge gaps (O)?



## Literature Search

### **Grey Literature**

Considered a total of 8 existing repositories of NbS across different regions, from which existing casestudies of SMI NbS were identified through filtering by geographic context, key words or manual searches.

## **Published Literature**

- Defined the search term to conducted a Scopus peer-reviewed literature search Publication
  - Years: until 2024
  - Developed a set of inclusion and exclusion criteria.

This publication is based upon work from COST Action Enhancing Small-Medium

Islands resilience by securing the sustainability of Ecosystem Services (SMILES) –

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## Conclusions

- The SMI-NbS database bridges fragmented knowledge, showcasing how nature-based solutions in small and marginalised islands (SMIs) contribute to biodiversity, climate resilience, and multiple SDG targets.
- By sharing local NbS experiences globally, the database supports more integrated, inclusive, and sustainable pathways for SMIs, helping to formalise evidence for policy and nature recovery agendas.

### REFERENCES

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