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Investigating the impacts of Invasive Alien Species (IAS) on Human Well-being: A systematic review

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ADMINISTRATIVE INFORMATION**Support** - No support.**Review Stage at time of this submission** - Piloting of the study selection process.**Conflicts of interest** - None declared.**INPLASY registration number:** INPLASY202680098**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 28 August 2026 and was last updated on 28 August 2026.**INTRODUCTION**

Review question / Objective The aim of this systematic review is to assess the impacts of invasive alien species (IAS) on human well-being, with a focus on the health outcomes globally. To this end, the proposed systematic review will address the following question: What are the impacts of Invasive Alien Species (IAS) spread on human well-being and health at a global scale?

Rationale This study aims to evaluate the impacts of the increasing spread of invasive alien species (IAS) on human well-being, with particular attention to health outcomes. Although numerous studies have documented diverse effects of invasive species, the available evidence remains fragmented. There is also a lack of standardized frameworks for assessing their implications across different well-being outcomes. Furthermore, there lies a critical gap in understanding the relative extent of these impacts, which consequently makes it difficult to prioritise which outcomes

require the most resources to effectively safeguard human well-being. To address these gaps, this review will undertake a systematic synthesis of the existing literature to examine how the reporting of various human well-being impacts has changed over time and across geographical regions. This study uses the Millennium Ecosystem Assessment (2005) as the framework to operationalize the concept of human well-being and categorize reported impacts across its constituent dimensions, including basic material for a good life, health, good social relations, security, and freedom and choice. It aims to identify the range of well-being outcomes associated with different IAS and based on this, to develop a comprehensive knowledge base. Ultimately, this review seeks to characterize the extent and distribution of IAS-related impacts on human well-being and support evidence-based decision making for the management of invasive alien species.

Condition being studied In recent years, there is growing evidence that human well-being outcomes are associated with the increase in IAS spread.

However, the extent of these impacts is not well understood and whether the spatial variability in these outcomes is species specific remains to be analyzed.

METHODS

Search strategy The search will be conducted in Scopus, PubMed, and Web of Science databases. The search will be restricted to peer-reviewed literature published between 29th August 2016 and 28th August 2026. The search terms will include a combination of keywords along with MeSH terms. Boolean operators (AND, OR) will be used to combine terms. Search strategies and results will be detailed in a table.

Participant or population Human populations affected by exposure to invasive alien species without any restrictions on age, gender, ethnicity, or geography.

Intervention Exposure to invasive alien species excluding studies involving organisms other than invasive alien species and microorganisms.

Comparator Not applicable.

Study designs to be included Primary studies including qualitative, quantitative, mixed methods, case studies, etc. Human well-being outcomes and excluding studies involving outcomes not related to human well-being.

Eligibility criteria Inclusion criteria:

- Studies involving human populations affected by exposure to invasive alien species, leading to impacts on their human well-being.
- Only the peer-reviewed literature published between 29th August 2016 and 28th August 2026.
- Studies published in English.

Exclusion criteria:

- Studies which have a purely ecological focus without any human well-being linkage.
- Studies involving human populations with organisms other than invasive species.
- Exposure to microorganisms.
- Grey literature including commentaries, editorials, or letters to the editor.
- Studies involving outcomes not related to human well-being.
- Reviews of any type, such as scoping, systematic or narrative.

Information sources We searched Scopus, PubMed, and Web of Science. The search was

restricted to peer-reviewed literature published between 29th August 2016 and 28th August 2026.

Main outcome(s) The different reported impacts of IAS on one or more human well-being outcomes including but not limited to health, livelihood, food security, economic standing, social and cultural dimensions including mental well-being.

Data management The relevant studies will be identified after going through title and abstract screening and full-text screening of the individual studies using the Covidence software. The screening will be independently conducted by two reviewers supported by a third reviewer in case of any conflict. Selected studies will be imported using EndNote citation software.

Quality assessment / Risk of bias analysis For assessing the methodological quality and risk of bias of the studies included in the final review, the Joanna Briggs Institute (JBI) critical appraisal tools will be used. The Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach will be used to evaluate the overall strength and certainty of the body of evidence.

Strategy of data synthesis The identified well-being outcomes will be analysed thematically to assess the strength of their associations with invasive alien species. Based on these findings, a conceptual IAS-Human well-being index framework will be developed to examine and compare the extent of impacts reported across different well-being dimensions.

Subgroup analysis Where sufficient evidence is available, subgroup analyses will be undertaken to explore variation in reported IAS-related human well-being impacts across key characteristics. Subgroups will include the constituents of human well-being defined by the Millennium Ecosystem Assessment (2005), with particular attention to health outcomes.

Sensitivity analysis Not applicable.

Language restriction Only English-language articles will be included in the search strategy.

Country(ies) involved India - School of Public Policy, Indian Institute of Technology Delhi, New Delhi and Australia - School of Public Health, The University of Queensland, Brisbane, Queensland.

Keywords Invasive alien species; invasive species; human well-being; wellbeing; health.

Dissemination plans The results will be disseminated through publication in a peer-reviewed journal within the domains of environmental and health sciences.

Contributions of each author

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