

6/ Biological invasions and stakeholder engagement³



Overview

Collaboration and networking among stakeholders and governments can ensure equitable knowledge access (*established but incomplete*) {D31}⁴ and improve understanding of the context-specific features of biological invasions and their impacts {KM-D5}.

Public awareness contributes to the effective management of biological invasions (*well established*) {D29}. Public understanding of the risks associated with invasive alien species is particularly important for preventing new introductions (*well established*) {D29}.

Engagement by all stakeholders, governments and the private sector helps to optimize management of biological invasions in terms of economic, environmental and social outcomes, particularly when resources are limited (*well established*) {C23}.

Enhanced coordination and collaboration across international and regional mechanisms are key strategic actions for rapid and transformative progress (*established but incomplete*) {D26}. Such coordination and collaboration efforts would consider the trade-offs across sectors {D26}, stakeholders and Indigenous Peoples and local communities {D26}, and the interdependence between invasive alien species and other drivers (*established but incomplete*) {D26}.

1. This factsheet is part of a series of factsheets, which highlight a selection of key elements on specific themes from the Summary for Policymakers of the IPBES Assessment Report on Invasive Alien Species and their Control. For further information and context, please consult the Summary for Policymakers and Chapters of that Assessment Report.
2. IPBES (2023). Summary for Policymakers of the Thematic Assessment of Invasive Alien Species and their Control of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services. Roy, H.E., Pauchard, A., Stoett, P., Renard Truong, T., Bacher, S., Galil, B.S., Hulme, P.E., Ikeda, T., Kavileveetil, S., McGeoch, M.A., Meyerson, L.A., Nuñez, M.A., Ordóñez, A., Rahlao, S.J., Schwindt, E., Seebens, H., Sheppard, A.W., Vandvik, V. (eds.). IPBES secretariat, Bonn, Germany. <https://doi.org/10.5281/zenodo.7430692>
3. <https://doi.org/10.5281/zenodo.10057037>
4. The references enclosed in curly brackets (e.g., {KM-C1, B11}) are traceable accounts and refer to sections of the Summary for Policymakers of the IPBES Assessment of Invasive Alien Species and their Control. A traceable account is a guide to the section in the summary for policymakers and the chapters that contains the evidence supporting a given message and reflecting the evaluation of the type, amount, quality, and consistency of evidence and the degree of agreement for that statement or key finding.

Perception and values of biological invasions

➤ Definition of biological invasions

The term “biological invasion” is used to describe the process involving the intentional or unintentional transport or movement of a species outside its natural range by human activities and its introduction to new regions, where it may become established and spread. Species introduced to new regions through human activities are termed alien species. Invasive alien species represent a subset of alien species known to have established and spread with negative impacts on biodiversity, local ecosystems and species. Many invasive alien species also have impacts on nature’s contributions to people and good quality of life {Introduction}.

➤ Perceptions and values

Public awareness and engagement contribute to the effective management of biological invasions (*well established*) {D29}. Public understanding of the risks associated with invasive alien species is particularly important for preventing new introductions (*well established*) {D29}. Increased understanding of possible biological invasions and the negative impacts of invasive alien species can be achieved through public awareness campaigns, education across all age groups and citizen science (*established but incomplete*) {D29}. Communication strategies based on evidence can help to bring about community action on biological invasions by supporting the co-design of management actions, knowledge exchange and enhanced partnerships among stakeholders {KM-D6}. Communication can also enable alignment of resource managers’ responses with national plans and policy priorities (*well established*) {D29}. An effective communications strategy considers the most appropriate timing, media and channels/interfaces for the target audience (*established but incomplete*) {D29}.

Conflict in values in relation to invasive alien species:

Perceptions of the threat of invasive alien species can vary depending on different human perspectives (*well established*) {A7}. Many invasive alien species have been intentionally introduced outside their natural range around the world for their perceived benefits without consideration or knowledge of their negative impacts (*well established*) {B9}. For example, invasive alien species are often used in forestry, agriculture, horticulture, aquaculture and as pets (*well established*) {B9}. Perceptions of specific invasive alien species and their value differ among and within stakeholder groups and Indigenous Peoples and local communities, as different community members can experience different impacts depending on gender, age, livelihood and a multitude of other factors (*established but incomplete*) {A7}. Value conflicts arise when invasive alien species are considered to be a major threat by some stakeholders and beneficial by others (*well established*) {A7}. Collaboratively addressing the management of biological invasions around which there are conflicting values is a significant global policy challenge (*well established*) {C23}.

Adaptation to invasive alien species: In some cases, Indigenous Peoples and local communities may consider an invasive alien species a valued part of their nature (*established but incomplete*) {A6}. There are examples where Indigenous Peoples and local communities have created new income sources by relying on invasive alien species, but that often occurs through necessity rather than choice (*well established*) {A6}.

Stakeholder engagement can improve the understanding and management of biological invasions

Collaboration and networking among stakeholders and governments can ensure equitable knowledge access (*established but incomplete*) {D31} and improve understanding of the context-specific features of biological invasions. It can also improve the availability of data and knowledge across geographic regions, habitats and taxonomic groups and reduce the wide variation in response capability (*established but incomplete*) {D31}.

- **Management of biological invasions benefits from engagement with stakeholders and Indigenous Peoples and local communities {C}**. Engaging stakeholders, including the private sector, and Indigenous Peoples and local communities in the collaborative management of biological invasions is important for social acceptability and improving environmental, social and economic outcomes, particularly where there are conflicting perceptions of the value of invasive alien species and the ethics of management options {KM-C6}.
- **Monitoring and surveillance:** Communication is an effective tool for inspiring collective action to monitor and control invasive alien species {D29} by supporting the co-design of management actions, knowledge exchange and enhanced partnerships among stakeholders and researchers (*established but incomplete*) {D29}. Surveillance for detecting invasive alien species through citizen science and social media provides broader security by empowering and engaging the public (*established but incomplete*) {D29}. Through citizen science, information systems have the potential to engage people, raise awareness and increase the availability of data (*established but incomplete*) {D31}.
- **Sharing and collaboration across knowledge systems:** Recognizing Indigenous Peoples' and local communities' knowledge, rights and customary governance systems in accordance with national legislation also helps to improve long-term management {KM-C6}.
- **Eradication:** Involvement of relevant stakeholders and Indigenous Peoples and local communities underpins and improves the success of eradication programmes (*well established*) {KM-C3, C19}. Societal support is important for eradication and control of some invasive alien species, particularly vertebrates, for which there are ethical considerations {C23}.
- **Adaptive management:** Adaptive co-management includes capacity-building; co-creation, co-design, co-development and co-implementation; social learning; and broad partnerships (*established but incomplete*) {C23}. A lack of stakeholder participation in adaptive management can lead to negative consequences for good quality of life, especially for Indigenous Peoples and local communities who have adapted by using invasive alien species, that include loss of livelihoods, marginalization and/or gender inequity (*well established*) {C23}. The involvement of all stakeholders can be achieved by using an adaptive co-management approach to the process, from decision-making to the implementation of management actions (*well established*) {C23}.
- **New tools and technologies:** Multi-stakeholder engagement, including risk communication and context-specific application of approaches through local communities, can improve public acceptability and adoption of new tools and technologies for managing biological invasions and the control of invasive alien species (*well established*) {C22}. Potential benefits and risks of novel technologies can be assessed using a risk assessment and risk management framework in line with a precautionary approach, as appropriate (*well established*) {C22}. Using this framework in consultation with regulators, stakeholders and Indigenous Peoples and local communities can limit the potential for unintended consequences (*well established*) {C22}. However, most countries do not have the regulatory frameworks and/or technical capabilities needed to guide and support development and implementation of new tools and technologies (*established but incomplete*) {C22}. Access to modern tools and technologies and the ability to utilize them can be limited, particularly in developing countries, meaning greater capacity-building is required and improved technical and scientific cooperation (*well established*) {C22}.

Citizen science

Public engagement with citizen science platforms and community-driven eradication campaigns can raise awareness and contribute to actions that reduce the threat of invasive alien species {KM-D6}. Engagement of the general public via citizen science platforms, awareness campaigns and community-driven eradication campaigns also contributes to establishing shared responsibilities for managing biological invasions (*established but incomplete*) {D29}.

Indigenous Peoples and local communities documenting impacts

Indigenous Peoples and local communities often have a good understanding of how the complex interactions among drivers facilitate the introduction and spread of invasive alien species on their lands (*established but incomplete*) {A6}. Impact reports by some Indigenous Peoples and local communities document:

- 68 per cent negative impacts and 32 per cent positive impacts on their good quality of life caused by invasive alien species (*established but incomplete*) {A6};
- 92 per cent negative impacts and 8 per cent positive impacts on nature caused by invasive alien species (*established but incomplete*) {A6}.

Integrated governance: coordination, collaboration, partnerships and roles of all actors

There are many reasons for the limited adoption, implementation and efficacy of policy instruments, including varying capacity and resources across regions (*well established*) {A8} and lack of coordination, with unclear roles and responsibilities among government agencies, stakeholders and Indigenous Peoples and local communities (*well established*) {A8}. Stakeholder consultation can support the development of national policies to assist in justifying the use of public resources and developing the most appropriate incentives (*established but incomplete*) {D28}.

Through a complementary set of strategic actions, integrated governance can limit the global problem of invasive alien species throughout the biological invasion process and at local, national and regional scales {KM-D1}. Strategic actions include broad engagement across all stakeholders and Indigenous Peoples and local communities {KM-D1}.

Enhanced coordination and collaboration across international and regional mechanisms are key strategic actions for rapid and transformative progress (*established but incomplete*) {D26} and could help international, national and local agencies that implement policies for the environment, agriculture, aquaculture, fishing, forestry, horticulture, border control, tourism and trade (e.g., in wildlife, but also including online trade in other animals, plants and other organisms), community and regional

development (including infrastructure), transportation and health deliver a coherent approach to biological invasions (*well established*) {D26}. Such coordination and collaboration efforts would consider the trade-offs across sectors, stakeholders and Indigenous Peoples and local communities, and the interdependence between invasive alien species and other drivers (*established but incomplete*) {D26}.

Collaborative, multisectoral and transdisciplinary approaches (such as One Health) **provide frameworks to prevent and control invasive alien species** by strengthening the interconnections between the human, animal, plant and environmental health sectors, including biosecurity (e.g., as outlined in the One Biosecurity framework among others) (*established but incomplete*) {D26}.