

Key Findings of the IPBES Assessment Report on Invasive Alien Species and their Control

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Produced by a multidisciplinary team of 86 experts and many contributing authors

86 nominated experts from 47 countries, encompassing all regions and many disciplines

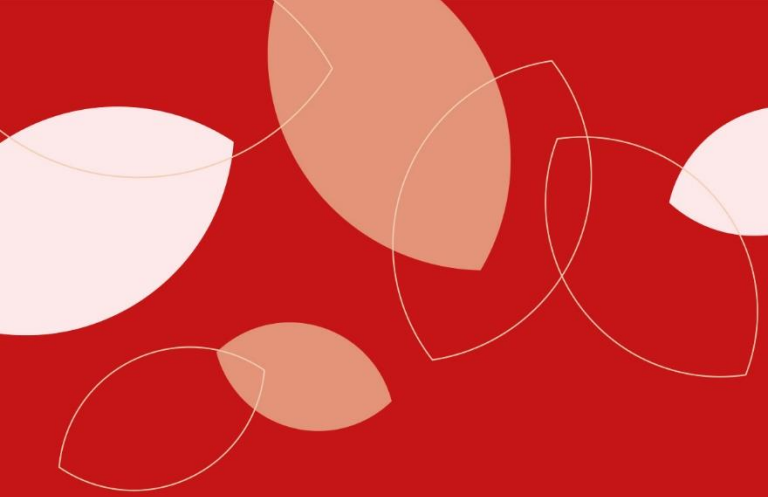
Engagement with Indigenous People and Local Communities

About 200 contributing authors

Supported by a management committee
Technical support unit based in Japan (Institute for Global Environmental Strategies, IGES)



[#InvasiveAlienSpecies Assessment](#)



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- What are invasive alien species?

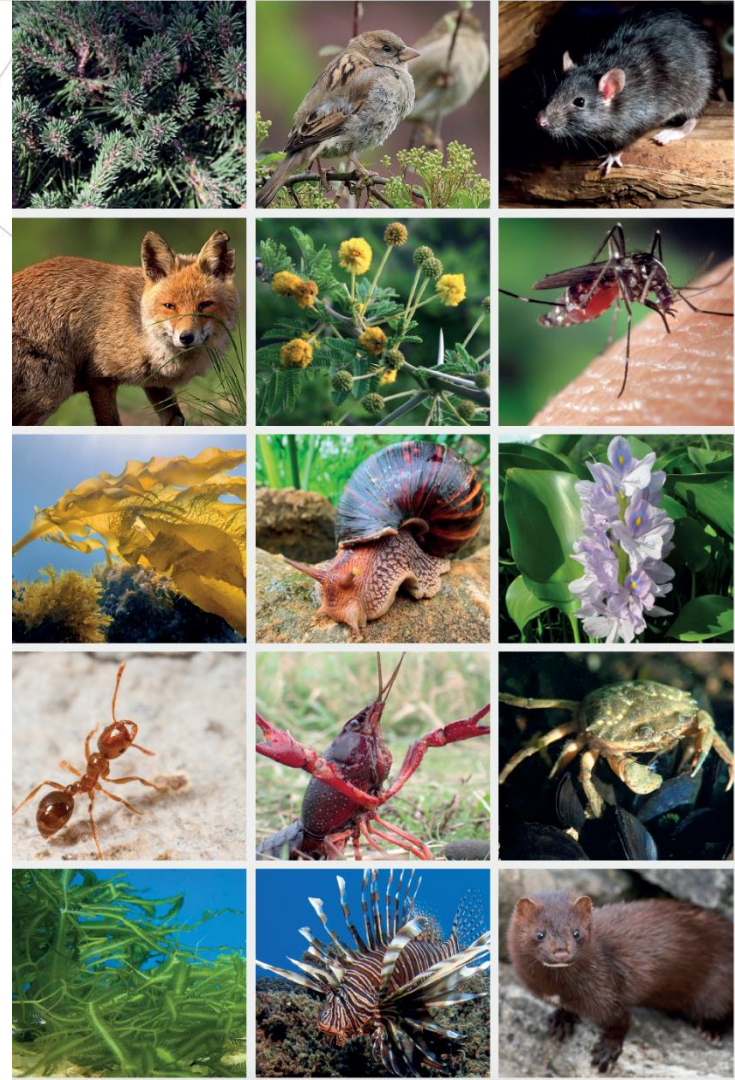


Alien species are animals, plants, and other organisms that have been introduced by human activities to new regions

Invasive alien species are a subset of alien species, known to have established and spread with negative impacts on nature. Many invasive alien species also have impacts on people

Invasive alien species are one of the 5 major drivers of biodiversity loss

#InvasiveAlienSpecies Assessment



Biological invasion - a process that transports (moves) and introduces a species outside of its natural range, intentionally or unintentionally by human activities to new regions where it may become established and spread



Native species - A species (animal, plant or other organism) within its natural range including shifting its range, without human involvement

1. Transport - Human activities move a species, intentionally or unintentionally, through introduction pathways beyond the barriers that define its natural range



Alien species - A species whose presence in a region is attributable to human activities that have enabled it to overcome its barriers that define its natural range



2. Introduction - Arrival at a new location outside of its natural range through human activities

Established alien species - A subset of alien species that have produced a viable, self-sustaining population and may have spread

3. Establishment - Production of a viable, self-sustaining population

Invasive alien species - A subset of established alien species that spread and have a negative impact on biodiversity, local ecosystems and species. Many invasive alien species also have impacts on nature's contributions to people (embodying different concepts, such as ecosystem goods and services and nature's gifts) and good quality of life

4. Spread - Dispersal and/or movement in a new region or range

Introduction pathways - The many ways in which species are moved from one location to another by human activities that give rise to an intentional or unintentional introduction

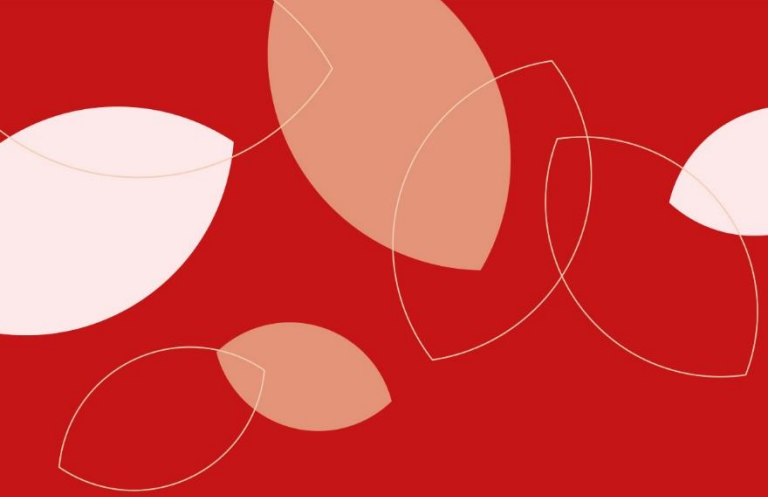
Drivers - Factors that directly or indirectly cause changes to nature and may facilitate biological invasions

Negative impacts - Negative changes to nature, nature's contributions to people and/or good quality of life caused by invasive alien species

Biological invasion process



“Biological invasions” is a term 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.



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Findings of the report



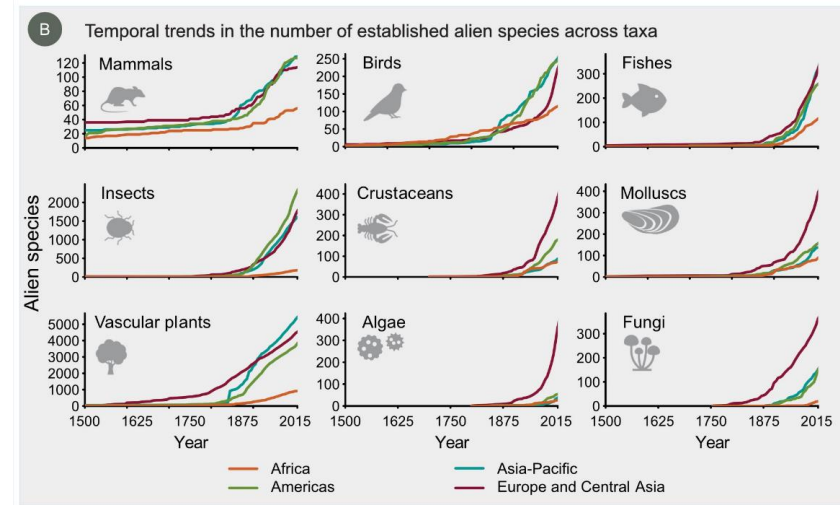
People and nature are threatened by invasive alien species in all regions of Earth

37,000 established alien species have been introduced by human activities worldwide

200 new alien species every year

3,500 invasive alien species, with negative impacts on nature, and also on people

More than 2,300 invasive alien species are found on lands of Indigenous Peoples across all regions of Earth



Current policies have been insufficient in managing biological invasions and preventing and controlling invasive alien species

Although most countries (80%) have targets for the management of biological invasions within their national biodiversity strategies and action plans

83% of countries do not have national legislation or regulations directed specifically toward the prevention and control of invasive alien species.

Nearly half of all countries (45%) do not invest in management of invasive alien species



A few numbers on impacts

60%

of **global species extinctions** have been caused, solely or alongside other drivers, by invasive alien species

>\$423
billion

is the estimated **global annual costs** of biological invasions in 2019.

85%

of impacts on nature and good quality of life are negative

80%

of impacts on nature's contributions to people are negative

Invasive alien species in marine ecosystems

Impacts

10% of all documented negative impacts are from marine ecosystems and 23.2% of local extinctions

Most impacts on good quality of life and mostly human health impacts

Knowledge gaps

Extent and timing of research efforts on marine invasive alien species lag behind terrestrial studies

Poor understanding of drivers of change that facilitate biological invasions in aquatic and marine systems

Drivers

Nearly 70% of marine invasive alien species established worldwide were introduced via biofouling.

Marine and aquatic infrastructure (shipping canals) may alter seascapes and the functioning of marine ecosystems, facilitating the spread of invasive alien species.

People at the heart of the problem...

Many human activities facilitate the transport, introduction, establishment and spread of invasive alien species

If things remain unchanged, by 2050 the total number of alien species globally is expected to be about one-third higher than in 2005.



A large fire burning in a field with firefighters in the foreground. The fire is intense, with bright orange and yellow flames rising into a dark, smoky sky. In the foreground, four firefighters in full gear are visible, standing in a field of tall grass. The overall scene is dramatic and emphasizes the impact of fire on the environment.

Invasive alien species and other drivers of change have complex interactions

Other drivers of change such demographic, economic, and land- and sea-use change are increasing and can amplify the threats and impacts of invasive alien species

Climate change will also be a major cause of future increases in the risk of invasive alien species

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... People at the heart of the solution

Biological invasions and their adverse impacts can be prevented and mitigated through effective management

There are 3 management options:

- (a) management of pathways of introduction and spread of invasive alien species;
- (b) management of target invasive alien species at either local or landscape scales; and
- (c) site-based or ecosystem-based management.

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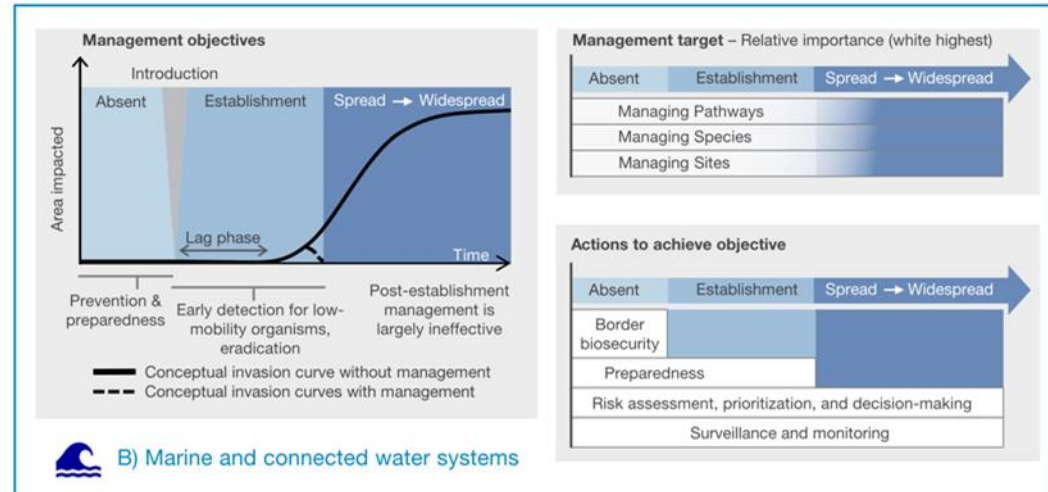


Management in marine and connected water systems

Prevention is critical as attempts at eradicating or containing invasive alien species have mostly failed

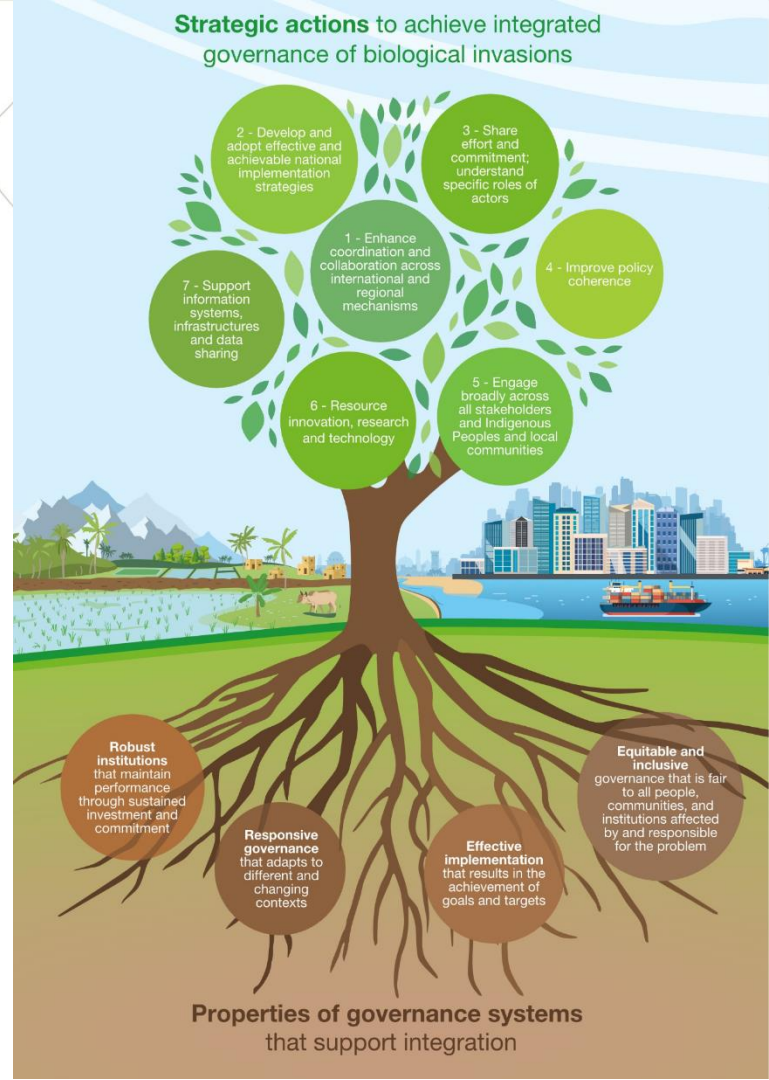
Pathway management (e.g., ballast water and biofouling) is by far the most effective option and can be achieved by enhanced international and regional cooperation

When prevention fails or is not possible, **preparedness, early detection and rapid response** are critical



Ambitious progress in biological invasion management can be achieved with integrated governance

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Share efforts and commitments; understand specific roles of actors

Box SPM 1 Voluntary codes of conduct can complement legislation for managing the risks of transport and the introduction of invasive alien species through trade.

Voluntary codes of conduct have limits, but they provide practical and concise guidance in establishing common standards of good practice and sustainable attitudes and behaviours for managing the risks of transport and the



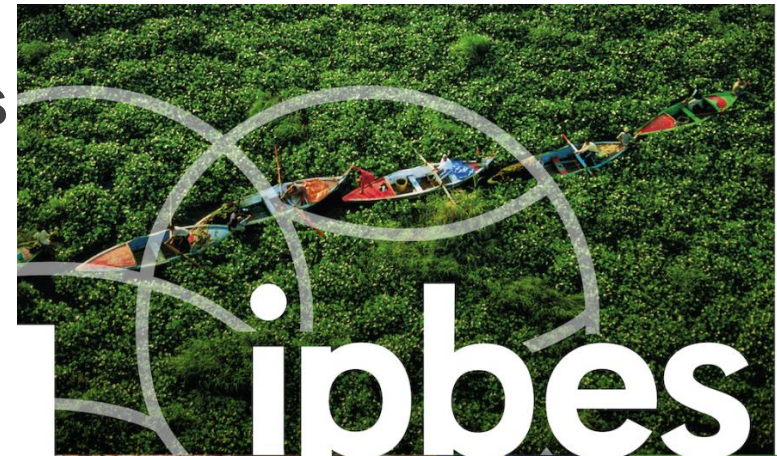
EUROPEAN CODE OF CONDUCT FOR BOTANIC GARDENS ON INVASIVE ALIEN SPECIES



introduction of invasive alien species through trade. For example, awareness of horticulture as a major pathway for the introduction of many (46 per cent) invasive alien plants worldwide [3.2.3.2] has led to industry-government collaboration that has resulted in the implementation of voluntary codes of conduct for the horticultural industry, complementing legislation to ban the sales of invasive alien plants considered to be high risk (Box 6.6). When designed in a collaborative manner, codes of conduct can help producers and consumers make informed choices. The adoption of voluntary codes of conduct can encourage e-commerce platforms to adopt better practices by screening their lists for invasive alien species, complying with relevant legislation and providing information on the species, including taxonomy, potential invasiveness and appropriate measures that a buyer could use to prevent escape. Codes of conduct have also been developed in Europe for other activities that can facilitate the introduction of invasive alien species, including boating, botanic gardens, horticulture, hunting, international travel, plantation forestry, pets, protected areas, e-commerce, recreational fishing, zoological gardens and aquaria.

Published in 2013 by the Council of Europe, the *European Code of Conduct for Botanic Gardens on Invasive Alien Species* outlines voluntary principles for all botanic garden personnel to support them in protecting ecosystems from the impacts of invasive alien species.

See: Heywood, V. H., & Sharrock, S. (2013). *European Code of Conduct for Botanic Gardens on Invasive Alien Species*. Council of Europe Publishing, F-67075 Strasbourg www.coe.int/Biodiversity



The thematic assessment report on **INVASIVE ALIEN SPECIES AND THEIR CONTROL**



Risk assessment could be used by businesses to engage different sectors in the prevention and management of biological invasions

#InvasiveAlienSpecies Assessment

Factsheets

Factsheet¹
Messages from the summary for policymakers

The thematic assessment report of
INVASIVE ALIEN SPECIES AND THEIR CONTROL²
Prepared by the co-chairs and technical support unit of the assessment

2/ The role of businesses in the management and governance of biological invasions³

Factsheet¹
Messages from the summary for policymakers

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4/ Biological invasions on islands³

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6/ Biological invasions and stakeholder engagement³

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1/ Invasive alien species: data on trends and impacts³

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3/ Invasive alien species affect protected areas and most natural ecosystems³

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5/ Invasive alien species management and governance³

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7/ Climate change and biological invasions³

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Overview

People and nature are threatened by invasive alien species in all regions of Earth (KM-A1)*. More than 57,000 established alien species, including more than 3,500 invasive alien species with documented impacts, have been recorded worldwide (well established) (A1), and the number of alien species is rising globally at unprecedented and increasing rates (well established) (B1).

Invasive alien species are a major direct driver of change, causing biodiversity loss, including local and global species extinctions (well established) (A2). Invasive alien species have contributed to a significant increase in the number of species at risk of extinction (A3), and to a significant increase in the number of species at risk of extinction (A3), and to a significant increase in the number of species at risk of extinction (A3).

The economy, food security, water security and human health are profoundly and negatively affected by invasive alien species (KM-A3). Nearly 90 per cent of the documented impact of invasive alien species on nature's contributions to people are negative (well established) (A4). Invasive alien species can threaten livelihoods, water and food security, economies and human health (well established) (A5), with 85 per cent of the documented impact of invasive alien species on good quality of life being negative (well established) (A5).

1. This technical report is part of a series of technical reports prepared by the Summary for Policymakers of the IPBES Assessment Report on Invasive Alien Species and Their Control. For further information and comments please contact the Summary for Policymakers and Co-Chairs of the Assessment Report.

2. IPBES (2019). Summary for Policymakers of the Thematic Assessment of Invasive Alien Species and Their Control. Report of the Summary for Policymakers and Co-Chairs of the Assessment Report. <https://www.ipbes.net/global-summaries/summary-for-policymakers-of-the-thematic-assessment-of-invasive-alien-species-and-their-control>

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Overview

Invasive alien species cause dramatic and, in some cases, irreversible changes to biodiversity and ecosystems, resulting in adverse and complex outcomes across all regions, including local and global species extinctions (KM-A2)*. The economy, food security, water security and human health are profoundly and negatively affected by invasive alien species (KM-A3). The economy, food security, water security and human health are profoundly and negatively affected by invasive alien species (KM-A3).

Invasive alien species and their negative impacts can be prevented and mitigated through effective management (C) which includes decision support tools, prevention (supported by regulation) and preparedness planning and actions, eradication, containment and control of invasive alien species, site- and ecosystem-based management, and ecosystem restoration (Introduction).

The Kunming-Montreal Global Biodiversity Framework provides an opportunity for national governments to develop or update aspirational, ambitious and realistic approaches to prevent and control invasive alien species (KM-D3). With sufficient resources, political will and long-term commitment, preventing and controlling invasive alien species are attainable goals that will yield significant long-term benefits for people and nature (KM-D7).

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Overview

Invasive alien species are recognized as one of the five major direct drivers of change in nature globally, alongside land- and sea-use change, direct exploitation of organisms, climate change, and pollution (Introduction)*.

The threats from invasive alien species are increasing markedly in all regions of Earth, with the current unparalleled high rate of introductions predicted to rise even higher in the future (KM-B3).

Climate change may lead to future increases in the establishment and spread of invasive alien species (established but incomplete) (B12).

Awareness of the risks of biological invasions will contribute to the effective delivery of several of the Sustainable Development Goals, including climate change (Goal 13) (KM-D4).

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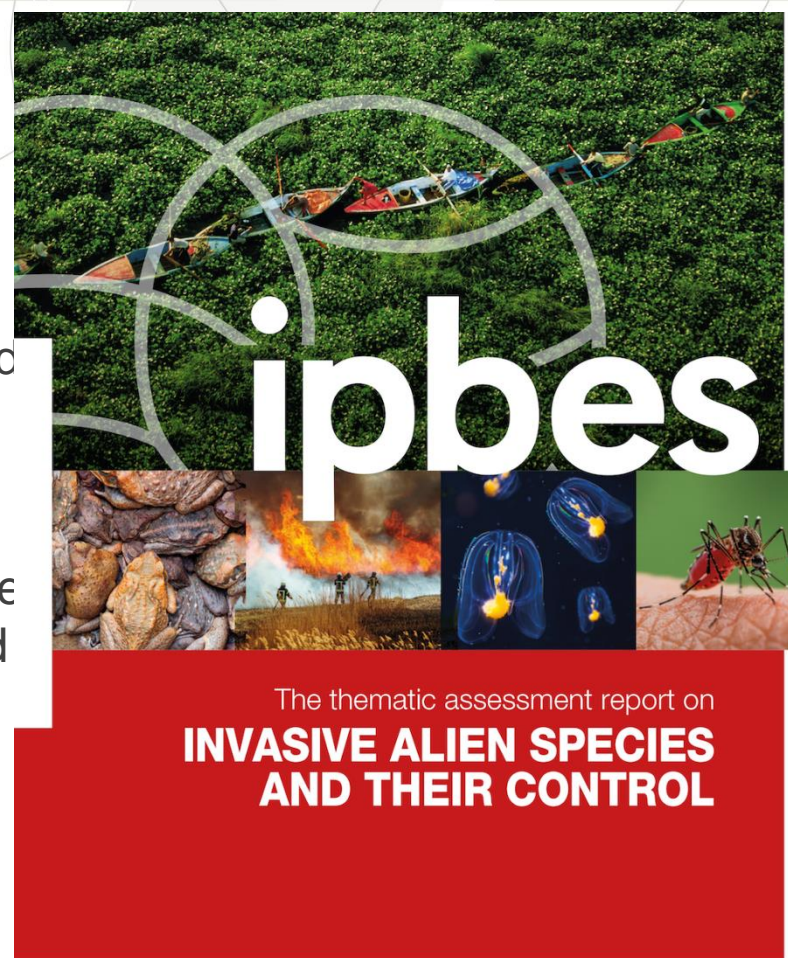
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There is compelling evidence for immediate and sustained action

With sufficient resources and long-term commitment, preventing and controlling invasive alien species are attainable goals that will yield significant long-term benefits for people and nature.



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Thank you!

¡Gracias!

Merci!