



Report of the State Comptroller of Israel | May 2022

Ministry of Environmental Protection

Prevention of Damage from Invasive Species and Preserving Biodiversity



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Background

There is a wide range and variability among living organisms as well as microorganisms in nature¹, constituting the biodiversity. The interactions between biodiversity and its environment create ecosystems that provide products, services, and benefits to human existence and welfare in terms of health, society, and economics. Along with population growth and the intensification of trade and development trends, the loss of biodiversity is accelerated, affecting ecosystems structure, services and contribution to mankind. Human activity reinforces the erosion generators of biodiversity, including both invasive and disruptive species, which harm the life fabric and areas essential for human existence, and cause financial damages. Prevention of risks and mitigation of the damages arising from the spread and establishment of invasive species, require prevention activities, extermination, control, and maintenance, which are very expensive. As of August 2021, in Israel there are between tens to hundreds invasive species, including the Fire ant and the Formosan subterranean termite; according to studies, the cost of the damage caused by invasive species ranges from NIS 473 million to about NIS 1.5 billion per annum. Examples of disruptive species include wild boars, whose entry into the urban space in the city of Haifa has increased in recent years; these boars cause significant damage and harm the residents and their welfare. From June 2021 to January 2022, the Haifa Municipality hotline received 3,586 reports of wild boars roaming about the city's streets.

1 Organisms are living creatures composed of one cell or more, having the ability to reproduce and maintain regulation of their internal environment. The organisms can originate from a plant or an animal; microorganisms are small creatures, invisible to the naked eye (the size of microns).



Key figures

about 452

marine invasive species were located in 2018 close to Israel's shores

114

plant nurseries are contaminated with Fire ant (as of August 2021)

in 10 foci

the Formosan subterranean termite – the most dangerous invasive species in the world and the most harmful among the termites – was established (as of August 2021)

in 89%

of the ecosystems in Israel, there was a deterioration in the biodiversity state

74%

of the national targets which Israel committed itself to in the CBD (Convention on Biological Diversity) had the status "insufficient progress"

USD 6.35 billion

the average annual cost of invasive species damage in Europe from 2010 to 2020

30

of the 105 Government companies have filed corporate sustainability reports

NIS 122 billion

the annual value of the ecosystem's benefits to human existence and welfare in Israel

NIS 0.5–1.5 billion

the estimate of the annual cost of the damage caused by invasive species according to the Ministry of Environmental Protection and the Society for the Protection of Nature in Israel

Audit actions



From April to August 2021, the Office of the State Comptroller examined the methods of preserving biodiversity and handling the damage caused by invasive species. The examination was conducted at the Ministry of Environmental Protection (the MEP), the Israel Nature and Parks Authority (INPA), and the Ministry of Agriculture and Rural Development. Supplementary examinations and clarifications were conducted at the Society for the Protection of Nature in Israel, at the Steinhardt Museum of Natural



History, which operates within the framework of the Tel Aviv University, at "HaMaarag," at the Israel Centre for Aquatic Ecology, at the Israel Oceanographic and Limnological Research, at the Mekorot company, at Netivei Israel, at the Israel Electric Corporation Ltd., at the Jewish National Fund, at the Israel Tax Authority, at the Government Companies Authority, at the Capital Market, Insurance and Savings Authority, at the Supervisor of Banks at the Bank of Israel, at the Israel Securities Authority, at the Ministry of Foreign Affairs, at the Ministry of Transport and Road Safety (the Ministry of Transport), at the Agricultural Research Organization, at the Ministry of Health, at the Israel Land Authority, at the Jezreel Valley Regional Council, and the IDF. The examination of the handling of invasive species dealt with the State's commitment to international conventions and norms and compliance with them; a national strategic action plan; normative regulation of the matter; handling the invasive species; monitoring biodiversity, including invasive species; citizen science and public involvement; corporate governance; and risk assessment, risk management and feasibility about the damage caused by invasive species. Some of the findings in this report have been updated as of February 2022.

Key findings

-  **International conventions on preserving biodiversity** – Israel does not meet 14 of the 19 national targets (about 74%) it has set itself for preserving biological diversity and the schedules it committed itself as part of the reporting to the Convention on Biological Diversity (CBD). Likewise, Israel has not ratified several conventions and protocols regarding the preservation of the marine environment and the Mediterranean shores, including the Ballast Water Management Convention and several protocols in the Barcelona Convention.
-  **Strategic action plan** – Israel does not have a strategic action plan for preserving biodiversity.
-  **Normative regulation** – Israel has no designated binding normative regulation for the mitigation and prevention of damages arising from the establishment of invasive species which are not harmful to vegetation. This is contrary to the primary and acceptable approach worldwide regarding biological safety management, for example, the New Species Law in New Zealand, the national legislation for emergency extermination of invasive species in Australia, and the provisions of the European Sustainability Reporting Directive.
-  **Institutional framework** – in the absence of an incorporating body for invasive species in a non-vegetative field and the absence of a coordinating body between all



those dealing with the prevention of invasive species and their handling (such as the Ministry of Environmental Protection, the Ministry of Agriculture, the Ministry of Health and the Israel Nature and Parks Authority), it is difficult to pool all the existing knowledge on the subject, supervise the implementation of the current regulations or conduct a risk assessment and implement the action courses. This is expressed mainly when a quick response or inter-ministerial action interfaces are required.



Releasing into the wild and the dispersal of invasive species – there is no binding prohibition in Israel concerning the release into the wild of organisms that are invasive species, that have been imported for landscape and leisure purposes; notwithstanding the prohibition on the import of water plants which are invasive species for landscape purposes, they are dispersed without hindrance by plant nurseries, for example, water hyacinth and water lettuce; there is no legal regulation of a mechanism for removing and dumping equipment contaminated with invasive species, such as furniture contaminated with termites.



Controls at border crossings – the current solutions for the prevention of the penetration of non-vegetative invasive species at the border crossings and ports at the entrances to Israel are partial, as they do not provide a response to all the possible methods of penetration and they do not include the required inspections for the prevention of the entry of invasive species. In Israel, there are no officials whose role is to inspect harmful non-vegetative invasive species, compared to the United States where 61,500 employees are permanently stationed at the crossings: officers and designated agents for inspecting merchandise at the sea and land border crossings, agricultural experts, and enforcement agents.



Invasion, spread, and establishment – the MEP has not conducted a risk assessment process for the invasion of dangerous species which cause damage, has not created a plan for early preparedness for their arrival, and has not determined an emergency series of actions that could prevent their establishment and rapid spread. There is concern that even the actions taken might not succeed in eliminating them and preventing the considerable damage they cause:

- **The Formosan subterranean termite** – was first discovered in Israel by a termites expert, and the MEP was informed of this in May 2019. The MEP only began to handle the termites at the end of September 2020. The MEP's actions in this matter, if they had been performed shortly after receiving the information from the expert, could have prevented the spread of the termite. The termite is known worldwide for causing considerable damage and is included in the 100 most dangerous species list. For example, in Louisiana, the annual damage from the Formosan subterranean termite has been estimated at about USD 500 million, and in New Orleans at around USD 300 million.



- **The Fire ant** – was first discovered in Israel in 2005 and since then has spread all over the country. In 2013 the MEP estimated its damage at approximately NIS 1.22 billion per annum, on the assumption of full spread.

 **Interfaces between monitoring bodies** – a large number of bodies deal with monitoring biodiversity actions, and for the most part, there is no full coordination between them (such as the Israel Oceanographic and Limnological Research, the Ministry of Agriculture – the Department of Fisheries, and the Israel Nature and Parks Authority). Although there is a great deal of information on biodiversity and invasive species, it is dispersed among several monitoring bodies; it is not pooled and not used when making decisions.

 **Corporate governance** – the existing directives concerning sustainable reporting (ESG), both binding and voluntary, only provide a reporting framework. The directives do not regulate binding standards for financial risk management arising from environmental risks. Moreover, environmental protection and biodiversity is a low priority among corporations. For example, about 30 companies out of 105 sent sustainability reports to the Government Companies Authority; most of the banks' reports about ESG matters are not necessarily on environmental matters, and even those concerning environmental matters are highly generalized.

 **Risk assessment** – the MEP does not conduct an inherent risk assessment, risk management, and financial assessments regarding invasive species that are not harmful to vegetation, implement them in procedures, and consider all the courses of action.

 **Financial assessment** – in 2013, the MEP assessed the cost of the damages caused as a result of the introduction, establishment, and full spread of five invasive species, which were estimated at about NIS 1,306 million per annum; in 2020, the MEP, in conjunction with the Ministry of Agriculture and the Israel Nature and Parks Authority, assessed the cost of the spread of approximately 70 invasive species at about NIS 473 million per annum; in 2021 the Office of the State Comptroller examined the cost of handling five species which had already invaded Israel, and found that the cost of the damage was higher by hundreds of percent compared with the previous assessments. These discrepancies raise doubts about whether an estimate of the damage obtained from the MEP's is consistent with the severity of the potential damage and the financial implications derived from the introduction of invasive species into Israel and their spread.



Since the beginning of 2020, the MEP has been making efforts to raise public awareness regarding invasive species, particularly insects. The call to the public to participate in the monitoring of his residence indicates that the Ministry acknowledges the importance of "citizen science" in collecting observations and the importance of sharing information with the public.



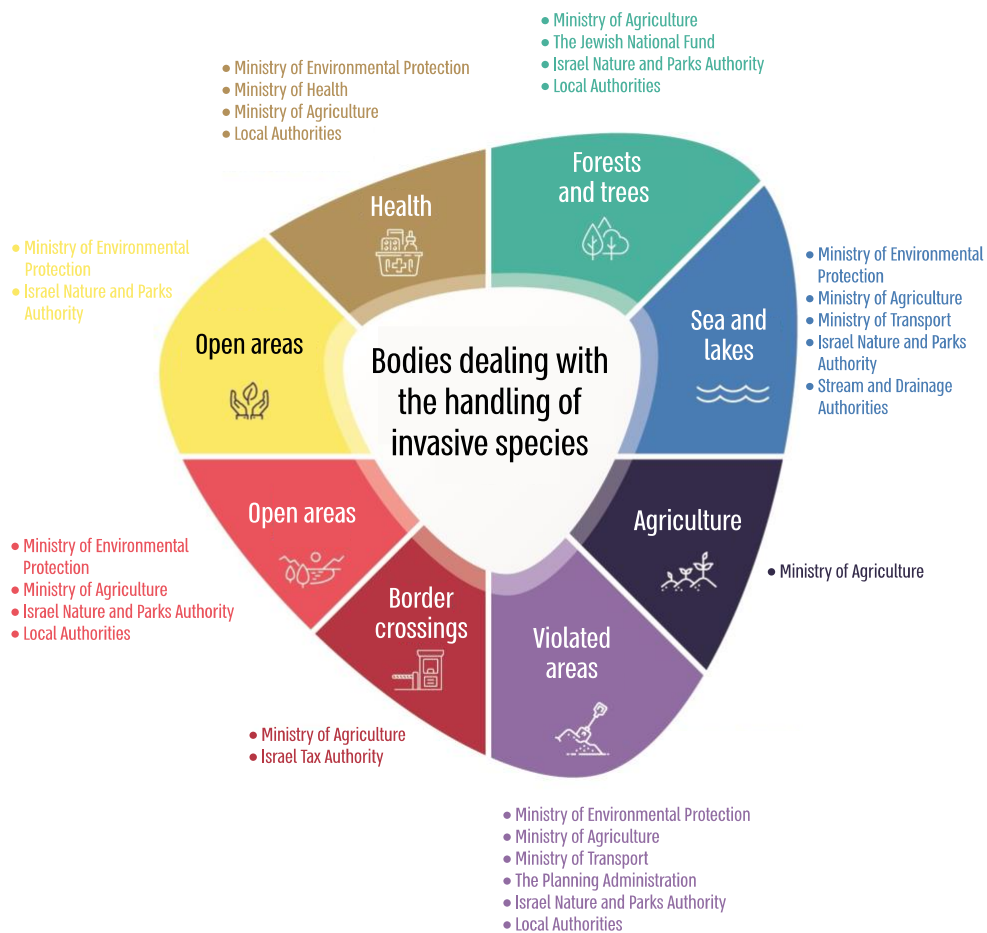
The regulators responsible for the financial-business network demonstrate an increasing understanding of responsible investments as a risk-reducing factor, and the TEVA-BIZ business venture, launched by the Society for the Protection of Nature in Israel and operated in conjunction with the MEP, advances organizational processes for the implementation of the preservation of the biodiversity as part of the companies' organizational culture. It is noticeable that the companies participating in this venture attach high importance to considerations of biodiversity, including in the matter of invasive species.

Key recommendations

-  It is recommended that the relevant Government ministries, including the MEP and the Ministry of Transport, advance ratification of the conventions and protocols relating to biological diversity and invasive species.
-  Given the international commitments and Government decisions, it is recommended that the MEP, complete the practical strategic plan for preserving biological diversity and preventing invasive species establishment, setting out targets and indices for success.
-  It is recommended that the MEP regulate binding norms for preventing the entry of invasive species that are not agricultural pests and regulate binding norms for handling and exterminating harmful invasive species.
-  It is recommended that the MEP and the Israel Nature and Parks Authority, which serve as the national center for the realization of Israel's international targets of biodiversity preservation and invasive species damage reduction, will lead to the determination of a cooperation mechanism between all ministries and relevant bodies involved, and create a binding framework for cooperation for all the potentially adversely affected fields.
-  It is recommended that the MEP coordinate and manage the existing knowledge about biodiversity in Israel and make adjustments according to the current global knowledge as a basis for decision making. Likewise, it is recommended that the MEP determine priorities in handling invasive species based on monitoring, financial assessments, and risk assessments.
-  It is recommended that the MEP act in conjunction with the Supervisor of Banks, the Capital Market, Insurance and Savings Authority, the Government Companies Authority, the Israel Securities Authority, and the Government to create binding regulatory tools for reporting to and sharing public, government or private corporations in all matters of biodiversity preservation.



The multiplicity of bodies dealing with the various aspects of invasive species



According to Amidar's data, they are processed by the Office of the State Comptroller.



Formosan subterranean termite nest and the damage these termites caused to a doorpost



Photographed by Tomer Lu, Termites Expert, 2020.



Summary

Based on biodiversity elements, ecological systems provide products, services, and benefits to human existence and welfare, summarized in the Quality of Life Index and the National Resilience Index. They have been estimated at about NIS 122 billion per annum in Israel. Due to the centrality and importance of eco systems and biodiversity in the fields of health, environment, infrastructures, agriculture, society, and the economy, they should be protected, and the substantive adverse effects of all the harmful generators, including invasive species, should be reduced.

For many years hundreds and even more invasive species have been established in Israel, causing damage to humans and the environment, including financial damages. The Government ministries in charge of the problem, are not well prepared for this and do not manage the risks and the courses of action required to prevent and mitigate the damages. Likewise, many bodies deal with various aspects of biodiversity preservation and handling of invasive species, and the actual responsibility derived from the normative tools available to the bodies is disproportionate to the needs in the field. In the absence of an integrated body, responsible for managing and prioritizing biodiversity preservation and preventing and mitigating invasive species damage, it is difficult to coordinate the work interfaces between all these bodies, thus delaying handling the problem; the difficulty is noticeable mainly in cases where a quick response is required.

In light of the importance of the matter and its effects, including the economic impacts, the MEP should examine the findings and recommendations of this report and rectify the deficiencies. Likewise, it is recommended to raise the matter of biological diversity to the public agenda by regularly issuing communications publications to the public, including regarding new invasive species and the necessary rules, provisions, risks, and actions.

