

Project Report

# Protecting Biodiversity from Invasive Alien Species by Improving Policy Instruments in Greece: The INVALIDIS Project Action Plan

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**Abstract:** The Protecting European Biodiversity from Invasive Alien Species (INVALIDIS) project objective is to improve policies for protecting biodiversity from invasive alien species (IAS), by bringing together seven partners from seven countries and supporting policy measures for prevention, early detection, and control of IAS in their respective territories. The project is funded by the Interreg Europe program. The learning process of the INVALIDIS project consisted of various experience-exchanging activities among the project partners (interregional workshops, site visits, etc.), as well as among stakeholders at a regional level. This exchange of experiences led to the drafting of regional Action Plans by each partner. The INVALIDIS Action Plan of Greece is based on an analysis of the current situation of IAS management in Greece, and the transfer of good practices and conclusions derived from the exchange of experiences. Gaps in IAS management were identified mainly in the areas of raising public awareness of IAS and networking among IAS stakeholders. As a result, three actions were proposed to address these deficits: initiating a project on education and raising awareness about IAS, creating a web portal on these species, and establishing an IAS management working group. These actions will contribute towards improving specific policy instruments in Greece.

**Keywords:** biological invasions; EU Regulation no. 1143/2014; management; action plan; awareness; stakeholders; networking; Interreg Europe



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## 1. The INVALIDIS Project

According to EU Regulation no. 1143/2014 (hereafter: IAS Regulation), invasive alien species (IAS) are defined as live specimens of species, subspecies, or a lower taxon that have been introduced outside their natural range and whose introduction or spread has been found to threaten or adversely impact biodiversity and related ecosystem services [1]. They are considered to be one of the greatest threats to biodiversity and natural ecosystems, since they can act as vectors for new diseases, cause native species' extinction, change ecosystem processes, and reduce the value of land and water for human activities [2–5]. IAS were estimated to have a cost of at least EUR 12.5 billion on an annual basis in Europe, resulting both from damages and necessary control measures [6]. More recent studies have estimated the costs to be significantly higher, whereas these costs are still severely underestimated due to significant knowledge gaps [7].

The project “Protecting European Biodiversity from Invasive Alien Species -INVALIDIS” [8] is funded by the Interreg Europe program. The objective of the project is to improve policies for protecting biodiversity from IAS, by bringing together seven partners from seven countries (Appendix A, Table A1) and supporting policy measures for prevention, early detection, and control of IAS in their respective territories. The Natural Environment and Climate Change Agency (NECCA) is the lead partner of the project [9].

INVALIDIS project duration is 5 years, and it is divided into two phases:

- Phase 1 (June 2018–May 2021) consisted of a learning process through exchanges of experiences between partners (four baseline studies, three interregional workshops, two site visits, an EU-wide policy learning event), as well as regional activities (stakeholder meetings, public dialogue events), leading to the drafting of regional Action Plans and accompanied by dissemination and communication actions.
- Phase 2 (June 2021–May 2023), focused on monitoring the Action Plans' implementation, is still ongoing.

INVALIS is expected to enable the participating authorities to address common challenges associated with biological invasions, such as knowledge gaps in ecosystems' vulnerability, lack of awareness about IAS environmental and socioeconomic risks, low levels of cooperation between public authorities and key stakeholders for the implementation of management measures, and conflicts of interest. The territories of the INVALIS partners are characterized by different paces and conditions concerning the protection of natural ecosystems from IAS. Interregional cooperation allows for exchange of experiences on efficient eradication/control methods, management of emerging conflicts of interest, and engagement of local communities in the management process, based on regional specificities and challenges. The overall objective is to support INVALIS partners in translating the lessons learned into regional policies and action plans.

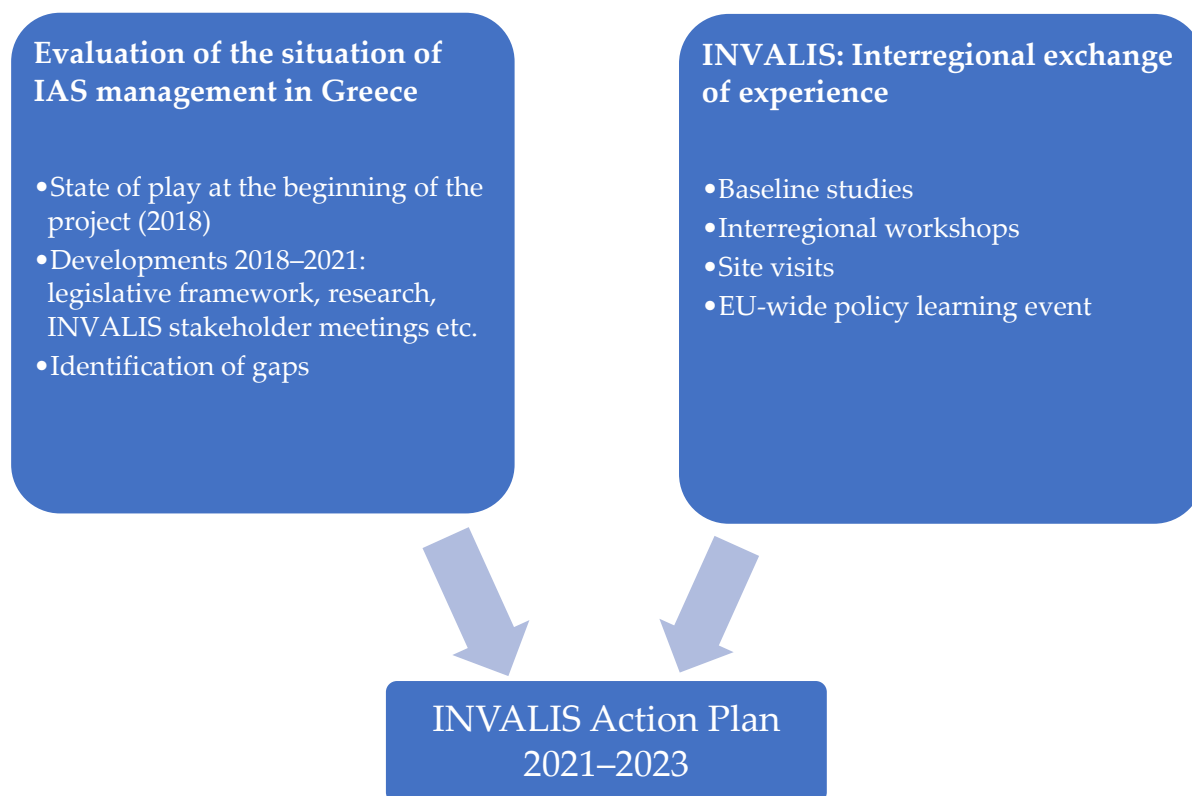
The policy instrument targeted by the project is the Transport Infrastructure, Environment and Sustainable Development Operational Programme 2014–2020 [10] in Greece. The sectoral operational program includes 16 priority axes, of which axis 12 supports the implementation of EU environmental policy on maintaining biodiversity and ecosystem services. Since the current programming period is approaching its end and the remaining available funds are restricted, the Greek INVALIS Action Plan aims also at influencing a new one. The Environment, Energy and Climate Change Operational Programme 2021–2027 is currently being drafted. In the latest draft [10], the challenges associated with biological invasions are addressed under priority axis 6 (protection of biodiversity).

## 2. The INVALIS Action Plan in Greece—Background

The development of the Action Plan was based on the evaluation of IAS management in Greece. The state of play in IAS management was initially assessed at the beginning of the project in 2018, together with the criteria of IAS regulation and the National Biodiversity Strategy & Action Plan implementation, as well as the general progress in IAS management (see Section 2.1).

With the contribution of regional project activities (regional stakeholder meetings, public consultations, and public dialogue events), a more comprehensive understanding of the challenges related to IAS in Greece was achieved. The six regional stakeholder meetings were organized periodically, either virtually or with physical presence, by inviting the key representatives of various sectors related to IAS management (public authorities, universities/research centers, NGOs, etc.). Each of these meetings focused on a different aspect of IAS management (Appendix B, Table A2), lasted 3–4 h, and included presentations from the participants, reporting on activities and projects related to IAS management, as well as allowing time for discussion. Additionally, there was a period for public consultations on the project, which were initiated by a public invitation to complete a questionnaire on IAS management and register for the public dialogue event. The public dialogue event was held with a structure similar to the regional stakeholder meetings, but having a more general orientation, and also allowing the participation of interested members of the general public. A communication manager was appointed by NECCA to support the realization of these meetings and events. Based on these activities, the new developments in IAS management during Phase 1 of the project (2018–2021), such as drafting national legislation for implementing the IAS Regulation and the projects on a national IAS list, were recorded (see Section 2.2).

The result was the identification of the main gaps in IAS management, where action is required (see Section 2.3). This process was supported by the activities of interregional experience exchange between INVALIDIS partners, which helped to identify the most essential aspects of IAS management and provided examples of good practices that could serve as sources of inspiration. This was the basis for the development of the INVALIDIS Action Plan 2021–2023 in Greece (Figure 1).



**Figure 1.** INVALIDIS Action Plan Development.

### 2.1. State of Play at the Beginning of the Project (2018)

IAS are a major threat to natural ecosystems in Greece. Reduction of biodiversity can lead to higher ecological damage due to the relatively high percentage of endemic taxa, which also increases the vulnerability and susceptibility to negative impacts of biological invasions [11]. Due to the country’s geographical features and location, marine biological invasions are of particular concern. The list of IAS of Union concern currently includes only one fully marine species [12], thus not acknowledging the significance of this threat, despite the serious impacts of IAS on European marine environments [13].

At the beginning of the project, the IAS Regulation had not yet been integrated into national legislation, and therefore no action had been taken for its implementation. The baseline information aggregated by EASIN [14] gave an overview on the distribution of IAS of Union concern in Greece. There had also been research on the occurrence of selected invasive species in the Greek territory, providing useful insights into the current state and conditions of biological invasions. These researchers covered a wide range of IAS-related issues, such as the state-of-the-art assessment of the alien vascular flora and their traits [15], selected terrestrial invasive alien vertebrates [16], biological invasions in riparian forests [17], the state of non-native insect species [18], and various aspects of marine biological invasions, including the latest update on alien and cryptogenic species records in the Greek Seas [19], among many others.

In early 2014, the Ministry of Environment and Climate Change published the National Biodiversity Strategy & Action Plan [20], setting specific objectives for the prevention, early detection, and control of the introduction and spread of invasive species in natural ecosystems. However, the territorial situation left much to be improved, such as:

- developing a robust institutional framework for detecting, preventing entry, controlling, or eradicating IAS;
- achieving a better understanding of the pathways and the introduction causes as well as the impact of such introductions on biodiversity and the economy;
- developing a comprehensive inventory of IAS observed in natural ecosystems and classifying them based on their frequency, spatial distribution, and potential damage to biodiversity, the economy, and health;
- raising public awareness about the threats presented by IAS.

## 2.2. Developments in IAS Management in Greece in 2018–2021

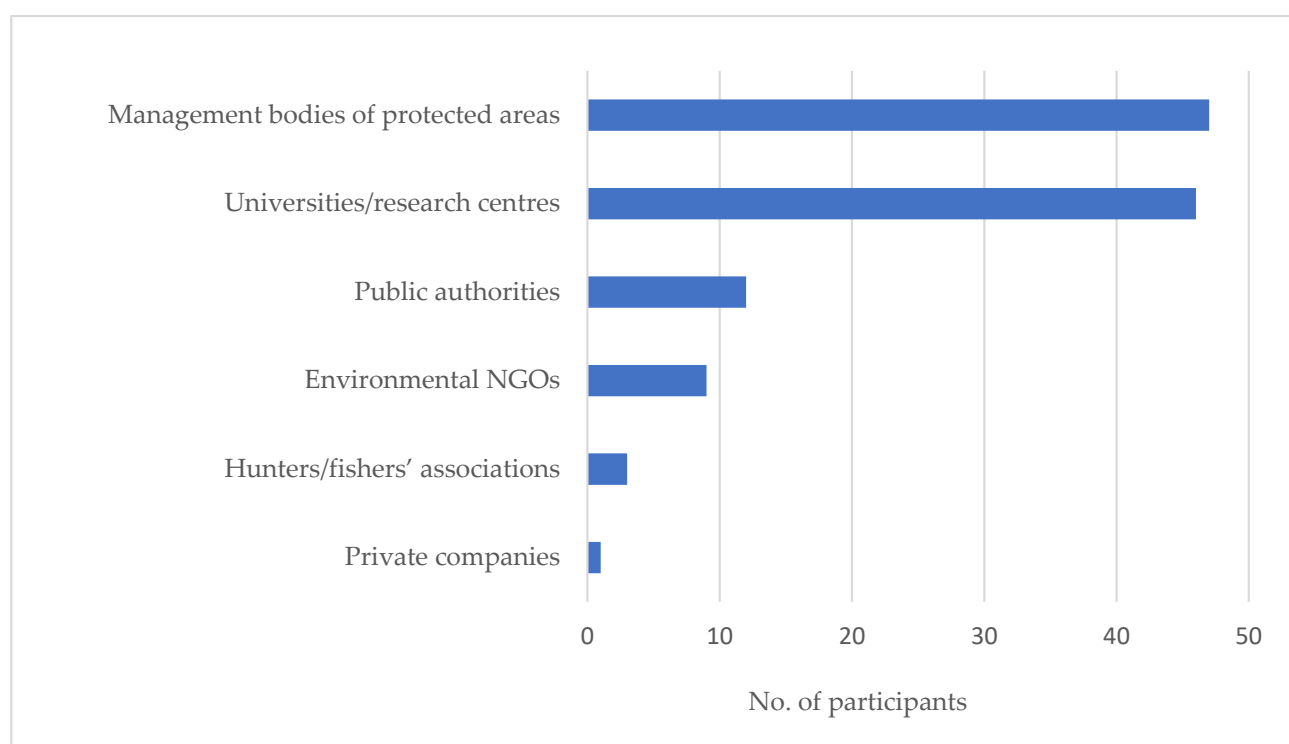
During Phase 1 of the INVALIDIS project (2018–2021), there were significant developments in the framework for IAS management in Greece. The main achievement was the Draft Joint Ministerial Decision (JMD) for implementing the IAS Regulation. The draft publication had been delayed due to disagreements among the authorities on the exact distribution of responsibilities. However, in March 2021 the draft JMD was finally submitted to public consultation [21], defining the competent authorities for the implementation of the Articles of IAS Regulation (among others, in MoEE, the Ministry of Rural Development & Food, the Ministry of Maritime Affairs and Insular Policy). The authority responsible for supervising and coordinating the implementation of the JMD will be the Directory of Natural Environment and Biodiversity Management in MoEE. The JMD includes provisions on permits (Article 8 of the IAS Regulation), authorizations (Article 9), official controls (Article 15), and penalties (Article 30). The public consultation has been completed and the final version of the JMD is expected to be officially adopted by the end of 2021 (Nikokavouras C. (MoEE, Directory of Natural Environment and Biodiversity Management, Athens, Greece), personal communication, 2021). The INVALIDIS project has contributed to the public consultation through the organization of the fifth stakeholder meeting [22]. The feedback from stakeholders was integrated in the new version of the draft JMD.

The MoEE has also launched a project on drafting a national list of IAS of member state concern and organizing a methodology for their risk assessment [23]. The outcomes of this project are expected to cover much of the necessary improvements in the territorial situation and will, among others, lay the foundation for the implementation of Articles 13 (action plans on the pathways of IAS), 14 (surveillance system), and 19 (management measures) of the IAS Regulation. In particular, the expected deliverables of the project will also include the compilation of an IAS inventory with their pathways of introduction in Greece, ranking of IAS according to the risk potential associated with each species. Moreover, management measures for high-risk species will be proposed, and there will be a list of the species that can potentially enter Greece and a proposal for an IAS surveillance system. The deliverables of this project will also serve as a basis for drafting management plans for each species, in which the competent authorities will be defined in more detail [22].

Work on IAS management in Greece is ongoing through several other projects and research programs. These cover a wide range of alien species, ranging from mammals (LIFE ATIAS [24]) and insects (Alientoma [25]) to plants (Alien Plants in Greece [26,27]). Research has been focused also on single species, which are of specific importance in Greece, e.g., *Solanum elaeagnifolium* [28]. Due to the geographical features of Greece, such as the long coastline and insularity, leading to the important role of fishery and marine transportation, and also the proximity to the Suez Canal, a special emphasis has been placed on marine invasions, which are addressed by a series of ongoing research projects either having a more general approach (Aliens In The Aegean - A Sea Under Siege—ALAS [29,30], INVASION) or focusing on specific species (4ALIEN [31], Lagomeal [32], Lionhare [33]). Projects such as “Is it alien to you? Share it” [34], “Pick the alien” [35], “Pick the alien

in the Ionian” [36], or the ELNAIS network [37], have contributed to raising awareness and improving networking especially on marine IAS. Posters and brochures published on specific marine species, such as *Lagocephalus sceleratus* [38], *Pterois miles* [39], and *Callinectes sapidus* [40] also serve in raising awareness. LIFE ATIAS includes eradication and control measures specifically for the feral mink populations, and the results of projects on marine species are also expected to contribute to their control and impact mitigation.

Additionally, significant progress has been achieved in networking between stakeholders in IAS management through the INVALIDIS project, by organizing six regional stakeholders’ meetings (Appendix B, Table A2) and a public dialogue event. A total of 118 participants (not including NECCA employees) have attended the regional stakeholders’ meetings, including representatives from public authorities, management bodies of protected areas, universities, research centers, NGOs, hunters’ and fishers’ associations, and private companies (Figure 2).



**Figure 2.** Total participants in INVALIDIS regional stakeholders’ meetings in Greece per stakeholder category.

### 2.3. Identification of Gaps in IAS Management

The new developments in IAS management in Greece since 2018 are expected to make an important contribution to the improvement of the territorial situation. The JMD will address the issue of institutional frameworks for detecting, preventing entry, controlling, or eradicating IAS. The project on the national IAS list [23] will contribute to better understanding of the pathways and causes of introduction, as well as to forming a comprehensive inventory of IAS observed in natural ecosystems and to their classification based on their frequency, spatial distribution, and potential damage to biodiversity, the economy, and health. It will additionally support the improvement of institutional frameworks through proposals for a surveillance system and management measures for high-risk species.

However, there are still important areas in which progress is not adequate, as they were identified in the regional stakeholder meetings and public dialogue event (Appendix B, Table A2). Awareness and understanding of the threats posed by IAS and the actions required for their prevention and control are still limited in Greece. It is also important to maintain and develop the networking among IAS stakeholders. The regional stakeholders' meetings demonstrated that there is a large amount of data and knowledge that is not always available to policymakers. Real advancements in IAS management will be limited if no actions are taken to fill these gaps.

### 3. Development of the INVALIDIS Action Plan

The objective of the Action Plan is to detail how the lessons learned through partners' cooperation and the activities in Phase 1 can inform and develop future actions, so that the policy instrument(s) can be improved within a predetermined timeframe (Table 1).

**Table 1.** INVALIDIS Action Plan 2021–2023: Proposed actions, possible players involved, and timeframe per action.

Action	Possible Players Involved	Timeframe
Action 1. New project on education and raising public awareness about the issue of IAS	Ministry of Environment and Energy, Ministry of Education, universities/research institutes, managing authorities of protected areas	2021–2023
Action 2. Web portal on IAS	Universities/research centers, ministries, managing authorities of protected areas, associations of hunters and fishers	2021–2023
Action 3. IAS Management Working Group	All INVALIDIS stakeholders (universities/research centers, public authorities, managing bodies of protected areas, environmental NGOs, associations of hunters and fishers)	2021–2023 and onwards

#### 3.1. Action 1—Project: Education and Raising Awareness about IAS

##### 3.1.1. Background

The lack of awareness and education has already been identified as one of the most important issues with IAS in Europe, contributing to their introduction and spread [41]. Once the public understands the negative impacts of IAS, the willingness to contribute to IAS management and even engage in control programs is expected to increase [42]. Raising public awareness was prioritized by experts as having the highest applicability out of all management actions for 12 marine model species [43], which is of particular importance in Greece due to the threat of marine invasions.

The importance of raising awareness about problems related to IAS was among the key findings of the INVALIDIS interregional exchange of experiences. One of the guidelines produced in the 1st Interregional Workshop was to communicate around the phenomenon of IAS through intervention with schools, exhibitions, scientific conferences, and information brochures [44]. The INVALIDIS baseline study on the environmental vulnerability of ecosystems indicated that poor awareness of the invasion problems is one of the factors increasing vulnerability to IAS introduction [45]. In the comparative analysis of territorial policies on IAS management, the low public awareness and/or opposition to government intervention was found to be the most important barrier constraining the implementation of policies [46]. The necessity of raising awareness was also one of the common conclusions



arising from the public dialogue events, during which it was also noted that it could be a low-cost tool compared to other methods [47].

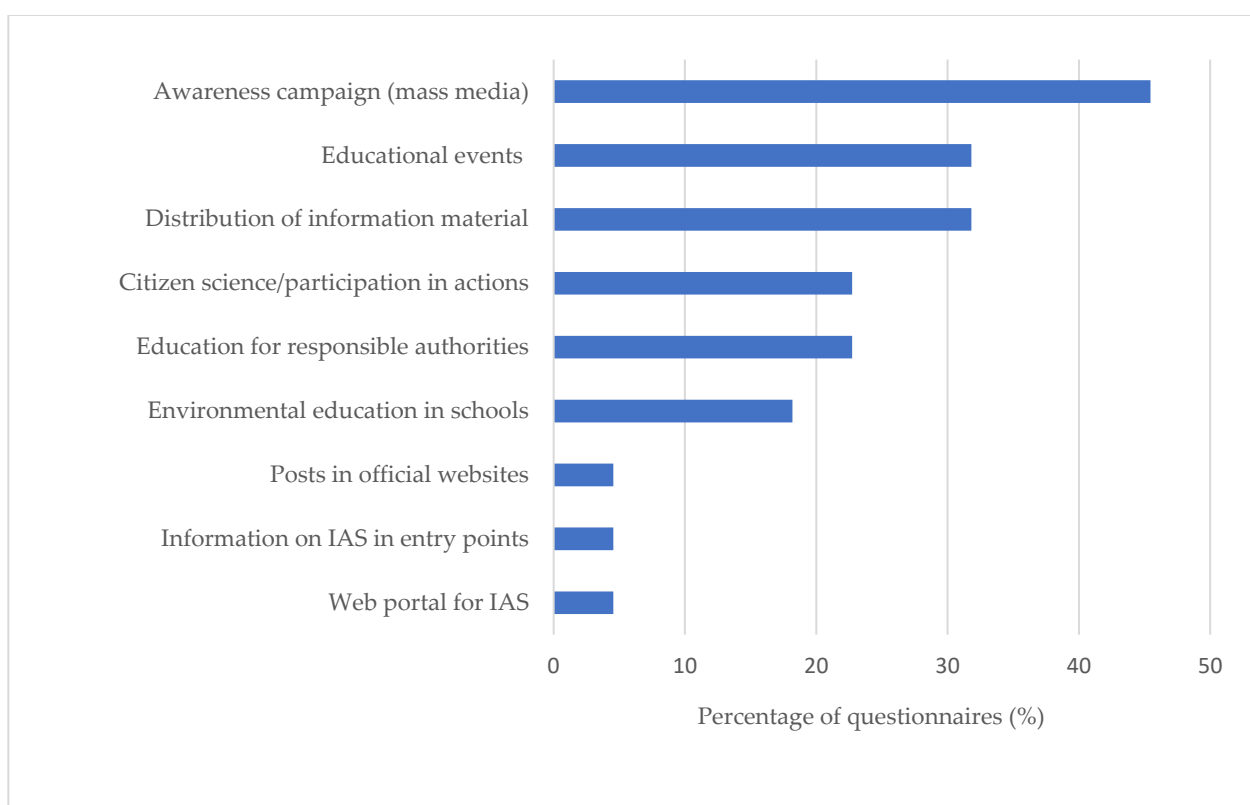
Lack of public awareness of IAS in Greece was also one of the issues that was stressed during the regional stakeholders' meetings [22,48,49] (Appendix B, Table A3). Raising awareness is necessary not only among the general public, but also among the responsible authorities, as demonstrated through examples reported by stakeholders [49]. Additionally, the possible problems that may arise with eradication measures in terms of bioethics and animal welfare were mentioned: public opinion is very sensitive on this issue and reactions could be very severe, if there is not a better understanding of the threats posed by IAS and the necessary management measures [22].

Therefore, the success of measures depends on increased awareness of the threats posed by IAS and on adequate training of staff in the responsible authorities. Since citizen science is also expected to contribute to IAS monitoring [34,50], an adequate level of knowledge on IAS among the general public will support the work of the official authorities.

Specific actions for raising public awareness about IAS were described during the interregional exchange of experiences in the framework of the INVALIS project, providing valuable sources of inspiration:

- Ministry for Ecological Transition and Sustainability—Junta de Extremadura presented during the 1st Interregional Workshop [44] a wide range of actions, targeting not only the general public (communicating the problem of biological invasions in mass media, web portals, preparation of informative material, merchandising) and education sector (e.g., school workshops), but also specific sectors involved in IAS management (pet ownership, fisheries/aquaculture, forestry) and public authorities.
- Corsican Agency of Environment presented the Action pour Limiter les risques de diffusion des espèces Introduites Envahissantes en Méditerranée (ALIEM) project [51], which contributed to raising awareness through brochures, communication campaigns, exhibitions, interventions with schools, and specific meetings with key players in the environment. Field trips were also organized [47].
- Lombardy Foundation for the Environment submitted, as a good practice, the creation of an integrated office in the airport of Orio al Serio, managing the control of IAS and actively informing passengers, customs inspectors, and all agents involved, of the problems caused by IAS [52].
- During the EU-wide policy learning event, the LIFE INVASAQUA project [53] was presented, the main objective of which is to raise the awareness of the Iberian public and stakeholders regarding the problem of IAS in aquatic ecosystems. This will be achieved by developing courses, training days for key groups (surveillance agents, river and estuary users, educators, etc.), and a mass media communication campaign.

Additionally, the questionnaires received during the public consultation for the INVALIS project in Greece included various proposals for actions aimed at raising public awareness about IAS. The evaluation of the questionnaires led to a prioritization of these sub-actions (Figure 3), which were taken into account in the design of Action 1. The answers indicated that there is a need for targeted actions especially toward responsible authorities, schools, and groups such as hunters, fishers, and farmers.



**Figure 3.** Percentage (%) of questionnaires evaluated as part of the public consultation for the INVALIDIS project, in which each specific action for raising public awareness was proposed. A total of 22 questionnaires were completed by stakeholders and interested citizens.

### 3.1.2. Nature of the Action

Action 1 was designed on the basis of the conclusions derived from INVALIDIS project activities and specific examples demonstrated during the interregional exchange of experiences. Ideas were derived from the examples described in the interregional project activities, by adjusting them to the Greek reality with the help of the suggestions and conclusions drawn from the regional activities (Figure 3, Appendix B, Table A3). A project for education and raising awareness about IAS can be launched, consisting of the following sub-actions:

- Organize training seminars/workshops on IAS for local and regional authorities, especially the ones responsible for implementing the IAS Regulation. Such seminars will lead to their increased capacity in IAS management, allowing for better local policy implementation and the allocation of funding [46]. The seminars/workshops should also include references to existing smart-apps created for the general public.
- Prepare TV and radio spots on IAS. These could be more effective if they focus on a few easily recognizable IAS that are significant in Greece. Species used as pets must be prioritized, since raising the awareness of owners or potential owners can have a real effect in limiting their spread. The threats associated with the presence of IAS must be stressed, as well as the necessity of taking measures for their management.
- Organize exhibitions at country's entry points, such as ports or airports [42]. Research on the pathways of IAS introduction could help identify the most appropriate places for such exhibitions.
- Carry out education and awareness-raising in schools (e.g., through the development of an e-book for children). Working with schools can contribute to increasing the understanding of IAS management measures from broader sections of society.



- Organize environmental education events e.g., through field trips in city parks in which IAS are present. During these events, behavioral changes that limit the spread of IAS can be encouraged [54].
- Prepare information material for visitors in protected areas, as well as for owners and customers of establishments related to pathways of introduction, e.g., pet shops, plant nurseries, boat owners, divers, and port managers. Such information material can also be posted on selected websites. Besides stressing the threats associated with IAS and the need for management measures, the information must also include legally binding management measures against IAS and relevant obligations e.g., of pet owners. The existence of smart-apps created for the general public, such as the “Invasive Alien Species Europe” app [55,56], should also be emphasized.

These communication actions will need to be reviewed on a regular basis and adjusted, where necessary, to enhance their effectiveness [42]. The development of outreach tools must be based on the translation of scientific benchmarks into everyday language [54]. This is a point where attention must be paid, since it was also a finding of the public dialogue events that the available scientific knowledge is not communicated to the public in an easy and accessible language [47].

### 3.2. Action 2—Web Portal on IAS

#### 3.2.1. Background

The dissemination of existing knowledge on IAS is an important challenge that was identified during the regional stakeholders’ meetings in Greece. There is little coordination between different projects and initiatives and even, in some cases, limited knowledge of each other. It is difficult for a policy-maker to have an overview of ongoing and completed activities related to IAS (projects, scientific publications, etc.) [48]; this could also be an obstacle when deciding on the prioritization of projects for funding. There are websites that provide open-access data on IAS, such as ELNAIS [37] or Alien Plants in Greece [27], but they are focused on specific IAS categories. A portal encompassing all information related to IAS is still missing in Greece, despite the fact that stakeholders (e.g., Panhellenic Union of Fishermen, Benaki Phytopathological Institute) expressed, during the regional INVALIDIS meetings, their willingness to share data and information they have collected, to contribute to IAS management [49].

During the activities of interregional exchange of experiences, various examples of similar initiatives were described by INVALIDIS partners, providing sources of inspiration:

- The Combating invasive species within the Tagus and Guadiana river basins in the Iberian peninsula (INVASEP) web portal in Extremadura [57] contains adapted information regarding IAS, teaching and school materials, an audiovisual area, news, games, and warning networks.
- The “Invasoras” Platform in Portugal [58,59] primarily focuses on the alien flora in terrestrial ecosystems. It contains comprehensive profiles of the species considered invasive in Portugal, provides useful tools and information for managers, scientific community members, and anyone interested in the topic, and offers learning material for environmental education.
- The Agency for the Protection of the Environment in Lombardy has developed a website that describes the impact of alien plants on biodiversity, natural ecosystems, and human activities [46,60].

#### 3.2.2. Nature of Action

The conclusions derived from project activities and the specific examples demonstrated during the interregional exchange of experiences formed the basis for designing Action 2, i.e., the creation of a web portal, providing an overview of the status of IAS management and of the existing knowledge on IAS in Greece. The portal will have a section containing general information, with open access for the general public, and a more secure section containing detailed and sensitive information, to which access will

be restricted to specific users (individuals and organizations related to IAS management). It is expected that the portal will be linked to the general Biodiversity Portal planned by NECCA, when this is finalized. In this case, NECCA will be responsible for updating and providing the necessary resources for this task.

The portal may contain:

- A general introduction to the subject of IAS;
- Links to IAS-related projects in Greece (completed/ongoing) and to websites focusing on specific IAS categories (e.g., ELNAIS [37], Alien Plants in Greece [27]), as well as to international networks, such as EASIN [61] or International Association for Open Knowledge on Invasive Alien Species (INVASIVESNET) [62];
- Educational material e.g., factsheets on IAS, presentations, quizzes;
- News related to IAS management in Greece (e.g., scientific publications, new developments on the institutional framework, IAS sightings);
- A discussion room for IAS stakeholders, in which various issues on IAS management, as well as ideas for new projects and recommendations for already ongoing projects, can be discussed.

The overview provided through the web portal will be not only interesting to the general public, but also useful for decision-makers. By providing links to existing international or national networks, such as EASIN or ELNAIS, and thus informing users about existing apps and reporting possibilities, it will also support early warning and surveillance of IAS. It could also contribute more directly to early warning, e.g., by giving users the capability to report IAS sightings.

Steps/sub-actions in implementing this action are as follows:

1. Assess the current status (pre-existing websites on IAS).
2. Determine the content of the web portal: available data, information, links to other websites.
3. Define the agents responsible for the management of the portal, as well as those providing information.
4. Design and develop the portal and data infrastructure.
5. Collect existing information and feed it to the web portal.
6. Examine the possibilities for communication and information exchange among registered users.
7. Define the mechanisms for the maintenance of the portal, as well as its updating through the flow of new information.

### 3.3. Action 3—IAS Management Working Group

#### 3.3.1. Background

To achieve effective IAS management, the views of stakeholders from all sectors need to be taken into account. Science is expected to provide information and advice to policymakers [63], but it is important to ensure knowledge transfer also in the opposite direction and even between scientists of various disciplines, because each field of expertise has its own strengths and limitations [42].

An important gain through the INVALIDIS project in Greece, as stressed by the participants in the regional meetings, was that a place for dialogue among various stakeholders involved in IAS management (academics, researchers, NGOs, public authorities, private companies, hunters' and fishers' associations) was provided [64]. The presentation of various projects and practices on IAS led to fertile discussions on necessities in IAS management and served, among others, as a basis for the development of the INVALIDIS Action Plan.

The Draft JMD for implementing the IAS Regulation includes the provision for a scientific advisory committee, tasked to support the coordination of the MoEE and to harmonize policies applied as part of the implementation of the JMD. The committee will include representatives both from public authorities and the scientific community [21]. A broader network, including all possible IAS stakeholders and meeting regularly, could

act in support of this Committee. It could help in identifying the issues that need to be managed and possible stakeholders that could be invited to the Committee for each issue.

Encouraging cross-departmental collaborations and synergies with local communities was one of the recommendations of the comparative analysis of territorial policies on IAS management [46] for improving the policy instruments. The guidelines encompassed the implementation of policies to establish surveillance, monitoring, and information exchange networks and ensuring full participation by all stakeholders, including local communities, in the development and implementation of legislation.

There were also other sources of inspiration from the interregional exchange of experiences:

- Corsica Alien Network [44,65], which integrates various invasive species scholars, regional and local authorities, research institutes, universities, environmental organizations, divers, and professional and citizens' associations. The originality and effectiveness of the network are based on this mode of operation, involving some 30 island partners [66].
- Iberian Working Group on Invasive Alien Species, which maintains the connection between the different regional and state-level administrations in Spain [46].

### 3.3.2. Nature of Action

Action 3 was also designed on the basis of conclusions derived from project activities and specific examples demonstrated during the interregional exchange of experiences. The INVALIDIS stakeholders' group already established during the project will be used and enlarged by including, e.g., professional chambers, local fishers' associations, and regional authorities. Involving all possible stakeholders in management planning makes it possible to agree on plans acceptable to all parties, thus reducing hostility towards management measures [54]. Biannual meetings among the members of this group may be organized. The project outcomes and policy measures will be discussed, while at the same time, requirements for new projects and measures will be identified. The virtual organization of meetings has been proposed in order to have representation of as many organizations as possible. Many of the bodies represented in the working group, such as the management bodies of protected areas, are dispersed around Greece and their physical participation in meetings is not feasible.

The establishment of such a working group will support the exchange of best practices, improve the efficiency of IAS management actions, and also contribute to finding solutions to shared problems, acting in combination with Action 2. Additionally, based on the conclusions from these meetings, annual workshops focused on specific issues of IAS management may be organized.

## 4. INVALIDIS Action Plan Outlook

Following a long period of inadequate progress in IAS management, there were some encouraging developments between 2018 and 2021 regarding the implementation of the IAS Regulation in Greece. The INVALIDIS Action Plan for Greece is focused on supporting the work carried out by the public authorities and the scientific community in this area, based on the inter- and intraregional activities and exchange of experiences, which were implemented as part of Phase 1 of the project. Gaps were identified mainly in the areas of raising public awareness about IAS and networking among IAS stakeholders. These areas were already identified as having a crucial role in IAS management, based on the international experience [41–43,67]. The importance of raising awareness and networking was also highlighted during the INVALIDIS project activities [44,46,47]. The Action Plan consists of actions that address exactly these two issues, and will therefore increase the chances for successful implementation of the JMD and later IAS management actions.

In order to ensure the successful implementation of the Action Plan in Phase 2 of the project, it is necessary to design a plan for project monitoring [68]. The monitoring will include control of the action plan's progress according to the timeframe, the evaluation

of the results of these actions, and adjustments to the timeframe as well as to the nature of the actions, if deemed necessary for achieving the objectives of the Action Plan. This will require the involvement of regional stakeholders, the continuation of interregional cooperation by maintaining communication between project partners, and the definition of measurable indicators demonstrating the progress of implementation (e.g., number of bodies involved in the evaluation and monitoring of projects and policy measures, number of registered users of and visitors to the web portal, number of participants in the training seminars and environmental education events).

In conclusion, INVALIDIS Action Plan 2021–2023 can support other developments and make an important contribution to laying the foundation for effective IAS management in Greece, provided that a monitoring plan for its implementation is followed. Considering the effects of climate change, the impacts from IAS will probably become more severe in the future [69], meaning that there is no time to waste and the deficits in IAS management must be addressed as quickly as possible. A rapid and comprehensive response is the only way to reduce the future impacts of biological invasions [70].

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## Abbreviations

EASIN	European Alien System Information Network
EC	European Commission
ELNAIS	Hellenic Network on Aquatic Invasive Species
EU	European Union
IAS	Invasive Alien Species
JMD	Joint Ministerial Decision
MoEE	Ministry of Environment and Energy
NECCA	Natural Environment and Climate Change Agency
NGO	Non-Governmental Organization

## Appendix A. INVALIDIS Project Partners

**Table A1.** INVALIDIS project partners.

Partner Name	Country	Role in Project
Natural Environment and Climate Change Agency	Greece	Lead Partner
Lombardy Foundation for the Environment	Italy	Partner
Ministry for Ecological Transition & Sustainability—Junta de Extremadura	Spain	Partner
Corsican Agency of Environment	France	Partner
Bucharest-Ilfov Regional Development Agency	Romania	Partner
Institute of Sciences, Technologies and Agroenvironment of the University of Porto	Portugal	Advisory Partner
Zemgale Planning Region	Latvia	Partner

## Appendix B. Regional INVALIDIS Activities in Greece

**Table A2.** Regional stakeholder meetings.

No.	Subject	Date	Form
1	Introductory meeting	29 October 2019	Physical
2	IAS: Eradication, control, and impact mitigation methods	16 December 2019	Physical
3	Emerging conflicts of interest in IAS management	25 November 2020	Virtual
4	Evaluation of territories/ecosystems' vulnerability to IAS	5 February 2021	Virtual
5	Implementation of the EU directives regarding IAS	31 March 2021	Virtual
6	INVALIDIS results and management of IAS in Greece	2 June 2021	Virtual

**Table A3.** Main conclusions from regional stakeholder meetings and public dialogue event.

Event	Main Conclusions
Stakeholder Meeting 1	Information is fragmented and not analyzed through the perspective of the IAS Regulation. There is a need to establish a stakeholders' network (public authorities, scientific community, NGOs) for systematic exchange of information and ideas.
Stakeholder Meeting 2	Greece has not implemented a wide range of actions in eradication, control, and impact mitigation yet. Specific criteria must be taken into account by the choice of the most appropriate treatment methods (e.g., biology of the species, biogeography of habitat, reversal of positive and negative effects, economic criteria).
Stakeholder Meeting 3	There is a need for clarifying the situation regarding the legal framework, as well as of protocols and coordination in IAS management. The knowledge collected should be available to local administration and the management bodies of protected areas, so that timely measures can be taken. It is very important to have tools for communication and raising public awareness, which is generally considered to be the most appropriate method for dealing with conflicts of interest.

Table A3. Cont.

Event	Main Conclusions
Stakeholder Meeting 4	<p>There are indications that some regions in Greece are more vulnerable to IAS, but in order to have a better picture on this, more intensive field research and the collection of quantitative data are required.</p> <p>Drafting a national list of IAS is necessary for the effective protection of ecosystems in Greece, even if it is not an obligation according to the IAS Regulation.</p> <p>The need for raising awareness is not limited to common citizens, but also extends to the responsible public authorities. This is an area to which INVALIDIS can and must contribute.</p>
Stakeholder Meeting 5	<p>The draft JMD is just a first step and others must follow, in order to achieve effective IAS management in Greece.</p> <p>It is crucial to inform local communities and raise public awareness, by highlighting IAS as an important problem. This will also support their early eradication, since their management after they have spread is much more difficult.</p>
Stakeholder Meeting 6	<p>Comprehensive and integrated management, as well as the cooperation of professionals, public authorities, scientists, and other stakeholders (e.g., recreational fishers, diving clubs) are a precondition for effective management.</p> <p>The experience from INVALIDIS demonstrated the value of synergies and interactions. It is very important to use the tools of INVALIDIS to lay the groundwork for the preservation and strengthening of networking.</p>
Public Dialogue Event	<p>There is plenty of scientific knowledge available on IAS in Greece, but there is no central collection that would ensure it is available to all concerned parties and utilized for different purposes.</p> <p>There is lack of coordination and contacts between stakeholders coming from different backgrounds.</p> <p>Drafting a national list of IAS is a crucial step in addressing the issue.</p> <p>Campaigns for raising public awareness, distribution maps, guides for the recognition of IAS, citizen science, and also training of staff in the responsible public authorities and relevant professional bodies are vital steps toward the early detection and effective management of IAS.</p> <p>Funding sources for projects related to IAS should be better utilized.</p>

## References

1. EC. Regulation No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species. In *Secondary Regulation No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the Prevention and Management of the Introduction and Spread of Invasive Alien Species*; European Commission: Strasbourg, France, 2014.
2. Pejchar, L.; Mooney, H.A. Invasive Species, Ecosystem Services and Human Well-Being. *Trends Ecol. Evol.* **2009**, *24*, 497–504. [\[CrossRef\]](#)
3. Vilà, M.; Basnou, C.; Pyšek, P.; Josefsson, M.; Genovesi, P.; Gollasch, S.; Nentwig, W.; Olenin, S.; Roques, A.; Roy, D.; et al. How Well Do We Understand the Impacts of Alien Species on Ecosystem Services? A Pan-European, Cross-Taxa Assessment. *Front. Ecol. Environ.* **2010**, *8*, 135–144. [\[CrossRef\]](#)
4. Simberloff, D.; Martin, J.-L.; Genovesi, P.; Maris, V.; Wardle, D.A.; Aronson, J.; Courchamp, F.; Galil, B.; García-Berthou, E.; Pascal, M.; et al. Impacts of Biological Invasions: What's What and the Way Forward. *Trends Ecol. Evol.* **2013**, *28*, 58–66. [\[CrossRef\]](#) [\[PubMed\]](#)
5. Shackleton, R.T.; Biggs, R.; Richardson, D.M.; Larson, B.M.H. Social-Ecological Drivers and Impacts of Invasion-Related Regime Shifts: Consequences for Ecosystem Services and Human Wellbeing. *Environ. Sci. Policy* **2018**, *89*, 300–314. [\[CrossRef\]](#)



6. Kettunen, M.; Genovesi, P.; Gollasch, S.; Pagad, S.; Starfinger, U.; Ten Brink, P.; Shine, C. *Technical Support to EU Strategy on Invasive Species (IAS)—Assessment of the Impacts of IAS in Europe and the EU (Final Module Report for the European Commission)*; Institute for European Environmental Policy: Brussels, Belgium, 2008.
7. Haubrock, P.J.; Turbelin, A.J.; Cuthbert, R.N.; Novoa, A.; Taylor, N.G.; Angulo, E.; Ballesteros-Mejia, L.; Bodey, T.W.; Capinha, C.; Diagne, C.; et al. Economic Costs of Invasive Alien Species across Europe. *NeoBiota* **2021**, *67*, 153–190. [CrossRef]
8. Interreg Europe INVALIDIS. Available online: <https://www.interregeurope.eu/invalidis/> (accessed on 29 September 2021).
9. Law 4586/2020. Government Gazette Issue 92A'/7-5-2020. Available online: [http://www.et.gr/idocs-nph/search/pdfViewerForm.html?args=5C7QrtC22wHUdWr4xouZundtvSoClrL8JqcMq8\\_XPEXtll9LGdkF53Ulx942CdyqSQYNuqAGCF0IfB9HI6qSYtMQEkEHLwnFqmgJSA5WIsuV-nRwO1oKqSe4BIOTSpEWYhszF8P8UqWb\\_zFijLoxTPpDilwXcUY3jpPAakXuEnPnpEhGfZ\\_REuJHBim](http://www.et.gr/idocs-nph/search/pdfViewerForm.html?args=5C7QrtC22wHUdWr4xouZundtvSoClrL8JqcMq8_XPEXtll9LGdkF53Ulx942CdyqSQYNuqAGCF0IfB9HI6qSYtMQEkEHLwnFqmgJSA5WIsuV-nRwO1oKqSe4BIOTSpEWYhszF8P8UqWb_zFijLoxTPpDilwXcUY3jpPAakXuEnPnpEhGfZ_REuJHBim) (accessed on 30 September 2021).
10. Transport Infrastructure, Environment and Sustainable Development Operational Programme. Available online: <https://www.ymeperaa.gr/> (accessed on 15 September 2021).
11. Korakaki, E.; Legakis, A.; Katsanevakis, S.; Koulelis, P.P.; Avramidou, E.V.; Soulioti, N.; Petrakis, P.V. Invasive Alien Species of Greece. In *Invasive Alien Species*; Pullaiah, T., Ielmini, M.R., Eds.; Wiley-Blackwell: Hoboken, NJ, USA, 2021; Volume 3, pp. 124–189.
12. Tsiamis, K.; Azzurro, E.; Bariche, M.; Çinar, M.E.; Crocetta, F.; De Clerck, O.; Galil, B.; Gómez, F.; Hoffman, R.; Jensen, K.R.; et al. Prioritizing Marine Invasive Alien Species in the European Union through Horizon Scanning. *Aquat. Conserv. Mar. Freshw. Ecosyst.* **2020**, *30*, 794–845. [CrossRef]
13. Katsanevakis, S.; Wallentinus, I.; Zenetos, A.; Leppäkoski, E.; Çinar, M.; Öztürk, B.; Grabowski, M.; Golani, D.; Cardoso, A. Impacts of Invasive Alien Marine Species on Ecosystem Services and Biodiversity: A Pan-European Review. *Aquat. Invasions* **2014**, *9*, 391–423. [CrossRef]
14. Tsiamis, K.; Gervasini, E.; Deriu, I.; D'Amico, F.; Nunes, A.; Addamo, A.; Cardoso, A. *Baseline Distribution of Invasive Alien Species of Union Concern*; Publications Office of the European Union: Luxembourg, 2017; pp. 1–96.
15. Arianoutsou, M.; Bazos, I.; Delipetrou, P.; Kokkoris, Y. The Alien Flora of Greece: Taxonomy, Life Traits and Habitat Preferences. *Biol. Invasions* **2010**, *12*, 3525–3549. [CrossRef]
16. Adamopoulou, C.; Legakis, A. First Account on the Occurrence of Selected Invasive Alien Vertebrates in Greece. *BiolInvasions Rec.* **2016**, *5*, 189–196. [CrossRef]
17. Efthimiou, G.; Themelakis, S. Riparian Forests and Alien Invasive Species. The Case of the Riparian Forest of Ardas River (GR1110008), NE Greece. In Proceedings of the 18th Pan-Hellenic Forestry Conference and International Workshop, Edessa, Greece, 8 October 2017; pp. 1040–1047.
18. Avtzis, D.N.; Coyle, D.R.; Christopoulos, V.; Roques, A. Biological Invasions, National Borders, and the Current State of Non-Native Insect Species in Greece and the Neighbouring Balkan Countries. *Bull. Insectology* **2017**, *70*, 161–169.
19. Zenetos, A.; Corsini-Foka, M.; Crocetta, F.; Gerovasileiou, V.; Karachle, P.; Simboura, N.; Tsiamis, K.; Pancucci, A. Deep Cleaning of Alien and Cryptogenic Species Records in the Greek Seas (2018 Update). *Manag. Biol. Invasions* **2018**, *9*, 209–226. [CrossRef]
20. Ministry of Environment, Energy and Climate Change. National Biodiversity Strategy & Action Plan. In *National Biodiversity Strategy and Action Plan*; Ministry of Environment, Energy and Climate Change: Athens, Greece, 2014.
21. Ministry of Environment and Energy. Available online: <https://ypen.gov.gr/metra-efarmogis-tou-kanonismou-ee-arith-1143-2014-tou-evropaikou-koinovouliou-kai-tou-symvouliou-tis-22-as-oktovriou-2014-gia-tin-prolipsi-kai-diacheirisi-tis-eisagogis-kai-exaplois-chorokataktiti/> (accessed on 17 September 2021).
22. NECCA. Interreg Europe INVALIDIS 5th Regional Stakeholders Meeting “Implementation of the EU Directives Regarding IAS”—Summary Report (INVALIDIS Deliverable A2.1). Available online: [https://necca.gov.gr/wp-content/uploads/2021/04/2021\\_1095\\_13-04-2021\\_INVALIDIS\\_5%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97\\_%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf](https://necca.gov.gr/wp-content/uploads/2021/04/2021_1095_13-04-2021_INVALIDIS_5%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97_%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf) (accessed on 28 September 2021).
23. Arianoutsou, M.; Adamopoulou, C.; Andriopoulos, P.; Vassilakis, E.; Galanidis, A.; Zenetos, A.; Zikos, A.; Kalogianni, E.; Karachle, P.; Kokkoris, Y.; et al. Compiling the National List of Alien Invasive Species in Greece. In Proceedings of the 10th Hellenic Conference of Ecology—Hellenic Conference of Hellenic Zoological Society, 17th Hellenic Scientific Conference of Hellenic Botanical Society—HELECOS 10 Ecology and Conservation of Nature: Advances and retreats in an age of crisis, Online Conference. 14–17 October 2021; Available online: <https://helec10.gr/en/> (accessed on 30 October 2021).
24. LIFE ATIAS. Available online: <https://lifeatias.gr/> (accessed on 20 September 2021).
25. Alientoma. Available online: <https://alientoma.myspecies.info/el/> (accessed on 22 October 2021).
26. Dimopoulos, P.; Bazos, I.; Kokkoris, I.P.; Zografidis, A.; Karadimou, E.; Kallimanis, A.S.; Raus, T.; Strid, A. *A Guide to the Alien Plants of Greece with Reference to the Natura 2000 Protected Area Network*, 1st ed.; NECCA: Athens, Greece, 2020.
27. Alien Plants in Greece: A Web-Based Platform. Available online: <https://www.alienplants.gr/> (accessed on 27 September 2021).
28. Krigas, N.; Tsiadouli, M.A.; Katsoulis, G.; Votsi, N.-E.; van Kleunen, M. Investigating the Invasion Pattern of the Alien Plant *Solanum Elaeagnifolium* Cav. (Silverleaf Nightshade): Environmental and Human-Induced Drivers. *Plants* **2021**, *10*, 805. [CrossRef]

29. ALAS. Available online: <https://alas.edu.gr/> (accessed on 19 September 2021).
30. Katsanevakis, S.; Tsirintanis, K.; Sini, M.; Gerovasileiou, V.; Koukourouvli, N. Aliens in the Aegean—A Sea under Siege (ALAS). *Res. Ideas Outcomes* **2020**, *6*, e53057. [CrossRef]
31. 4ALIEN. Available online: <http://www.4alien.gr/> (accessed on 23 September 2021).
32. Lagomeal. Available online: <https://lagomeal.gr/> (accessed on 23 September 2021).
33. Lionhare. Available online: <https://lionhare.hcmr.gr/> (accessed on 23 September 2021).
34. Giovos, I.; Kleitou, P.; Poursanidis, D.; Batjakas, I.; Bernardi, G.; Crocetta, F.; Doumpas, N.; Kalogirou, S.; Kampouris, T.E.; Keramidas, I.; et al. Citizen-Science for Monitoring Marine Invasions and Stimulating Public Engagement: A Case Project from the Eastern Mediterranean. *Biol. Invasions* **2019**, *21*, 3707–3721. [CrossRef]
35. Pick the Alien. Available online: <https://isea.com.gr/pick-the-alien-2/?lang=en> (accessed on 23 September 2021).
36. Pick the Alien in the Ionian—Ionian Environment Foundation. Available online: <https://www.ionianenvironment.org/grants/pick-the-alien-in-the-ionian/> (accessed on 22 October 2021).
37. Zenetos, A.; Arianoutsou, M.; Bazos, I.; Balopoulou, S.; Corsini-Foka, M.; Dimiza, M.; Drakopoulou, P.; Katsanevakis, S.; Kondylatos, G.; Koutsikos, N.; et al. ELNAIS: A Collaborative Network on Aquatic Alien Species in Hellas (Greece). *Manag. Biol. Invasions* **2015**, *6*, 115–117. [CrossRef]
38. Ministry of Rural Development and Food. Lagocephalus scleratus—Poster. Available online: <http://www.alieia.minagric.gr/sites/default/files/basicPageFiles/%CE%91%CE%A6%CE%99%CE%A3%CE%91%20%CE%9B%CE%91%CE%93%CE%9F%CE%9A%CE%95%CE%A6%CE%91%CE%9B%CE%9F%CE%A3.pdf> (accessed on 22 October 2021).
39. Ministry of Rural Development and Food. Pterois Miles—Brochure. Available online: <http://www.alieia.minagric.gr/sites/default/files/basicPageFiles/lionfish%20brochure%20final.pdf> (accessed on 22 October 2021).
40. Geotechnical Chamber of Eastern Macedonia; Managing Authority of Nestos Delta, Vistonida, Ismarida and Thasos. Callinectes sapidus—Brochure. Available online: <https://basilakakis.files.wordpress.com/2011/09/cebaceb1ceb2cebfcf85cf81ceb9ceb1-fylladio-ceb3ceb5cf89cf84ceb5ceb5-ceb5cf80-ceb1cebcceb1ceb8-v5.pdf> (accessed on 22 October 2021).
41. Piria, M.; Copp, G.; Dick, J.; Duplić, A.; Groom, Q.; Jelić, D.; Lucy, F.; Roy, H.; Sarat, E.; Simonović, P.; et al. Tackling Invasive Alien Species in Europe II: Threats and Opportunities until 2020. *Manag. Biol. Invasions* **2017**, *8*, 273–286. [CrossRef]
42. Caffrey, J.; Baars, J.-R.; Barbour, J.; Boets, P.; Boon, P.; Davenport, K.; Dick, J.; Early, J.; Edsman, L.; Gallagher, C.; et al. Tackling Invasive Alien Species in Europe: The Top 20 Issues. *Manag. Biol. Invasions* **2014**, *5*, 1–20. [CrossRef]
43. Giakoumi, S.; Katsanevakis, S.; Albano, P.G.; Azzurro, E.; Cardoso, A.C.; Cebrian, E.; Deidun, A.; Edelist, D.; Francour, P.; Jimenez, C.; et al. Management Priorities for Marine Invasive Species. *Sci. Total Environ.* **2019**, *688*, 976–982. [CrossRef] [PubMed]
44. Office de l'Environnement de la Corse. Interregional Workshop on Different Eradication and Control Methods for Invasive Alien Species. Palais Lantivy, Ajaccio, Corsica (INVALIDIS Deliverable A3.1). Available online: [https://www.interregeurope.eu/fileadmin/user\\_upload/tx\\_tevprojects/library/file\\_1623918213.pdf](https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1623918213.pdf) (accessed on 22 September 2021).
45. Paganelli, D.; Reino, L.; Capinha, C.; Ribeiro, J. Exploring Expert Perception of Protected Areas' Vulnerability to Biological Invasions. *J. Nat. Conserv.* **2021**, *62*, 126008. [CrossRef]
46. Office de l'Environnement de la Corse. Comparative Analysis of Territorial Policies on IAS Management (INVALIDIS Deliverable A1.1). Available online: [https://www.interregeurope.eu/fileadmin/user\\_upload/tx\\_tevprojects/library/file\\_1596112134.PDF](https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1596112134.PDF) (accessed on 22 September 2021).
47. Zemgales Plānošanas Reģions. A2.2 Synthesis Report (INVALIDIS Deliverable A2.2). Available online: [https://www.interregeurope.eu/fileadmin/user\\_upload/tx\\_tevprojects/library/file\\_1634022528.pdf](https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1634022528.pdf) (accessed on 30 October 2021).
48. NECCA. Interreg Europe INVALIDIS 3rd Regional Stakeholders Meeting Addressing Emerging Conflicts of Interest in IAS Management—Summary Report (INVALIDIS Deliverable A2.1). Available online: [https://necca.gov.gr/wp-content/uploads/2020/12/INVALIDIS\\_3%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97\\_%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf](https://necca.gov.gr/wp-content/uploads/2020/12/INVALIDIS_3%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97_%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf) (accessed on 28 September 2021).
49. NECCA. Interreg Europe INVALIDIS 4th Regional Stakeholders Meeting Evaluation of Territories' and Ecosystems' Vulnerability to Invasive Alien Species—Summary Report (INVALIDIS Deliverable A2.1). Available online: [https://necca.gov.gr/wp-content/uploads/2021/02/INVALIDIS\\_4%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97\\_%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf](https://necca.gov.gr/wp-content/uploads/2021/02/INVALIDIS_4%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97_%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf) (accessed on 28 September 2021).
50. Cardoso, A.C.; Tsiamis, K.; Gervasini, E.; Schade, S.; Taucer, F.; Adriaens, T.; Copas, K.; Flevaris, S.; Galiay, P.; Jennings, E.; et al. Citizen Science and Open Data: A Model for Invasive Alien Species in Europe. *Res. Ideas Outcomes* **2017**, *3*, e14811. [CrossRef]
51. Interreg ALIEM. Available online: <https://www.aliem-network.eu/> (accessed on 20 September 2021).
52. Interreg Europe—Policy Learning—Good Practices. Available online: <https://www.interregeurope.eu/policylearning/good-practices/item/4149/invasive-alien-species-ias-increasing-awareness-at-the-airport-of-milan-orio-al-serio/> (accessed on 23 September 2021).

53. LIFE INVASAQUA. Available online: <http://www.lifeinvasaqua.com/en/> (accessed on 18 September 2021).
54. Larson, D.L.; Phillips-Mao, L.; Quiram, G.; Sharpe, L.; Stark, R.; Sugita, S.; Weiler, A. A Framework for Sustainable Invasive Species Management: Environmental, Social, and Economic Objectives. *J. Environ. Manage.* **2011**, *92*, 14–22. [CrossRef]
55. EASIN—Citizen Science. Available online: <https://easin.jrc.ec.europa.eu/easin/CitizenScience/BecomeACitizen> (accessed on 22 October 2021).
56. Adriaens, T.; Tricarico, E.; Reyserhove, L.; De Jesus Cardoso, A.; Gervasini, E.; Lopez Canizares, C.; Mitton, I.; Schade, S.; Spinelli, F.A.; Tsiamis, K. *Data-Validation Solutions for Citizen Science Data on Invasive Alien Species*; Publications Office of the European Union: Luxembourg, 2021; Volume JRC126140.
57. LIFE INVASEP. Available online: [http://www.invasep.eu/invasep\\_eng/index.php](http://www.invasep.eu/invasep_eng/index.php) (accessed on 22 September 2021).
58. Invasoras. Available online: <https://invasoras.pt/en> (accessed on 22 September 2021).
59. Bucharest-Ilfov Regional Development Agency. Good Practice Guide on Invasive Alien Species Management Tools (INVALIDIS Deliverable A1.4). Available online: [https://www.interregueurope.eu/fileadmin/user\\_upload/tx\\_tevprojects/library/file\\_1587936485.pdf](https://www.interregueurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1587936485.pdf) (accessed on 22 September 2021).
60. APRA Lombardia. Available online: <http://www3.arpalombardia.it/biodiversita/> (accessed on 21 September 2021).
61. Katsanevakis, S. European Alien Species Information Network (EASIN): Supporting European Policies and Scientific Research. *Manag. Biol. Invasions* **2015**, *6*, 147–157. [CrossRef]
62. Lucy, F.; Roy, H.; Simpson, A.; Carlton, J.; Hanson, J.; Magellan, K.; Campbell, M.; Costello, M.; Pagad, S.; Hewitt, C.; et al. INVASIVESNET towards an International Association for Open Knowledge on Invasive Alien Species. *Manag. Biol. Invasions* **2016**, *7*, 131–139. [CrossRef]
63. Essl, F.; Hulme, P.E.; Jeschke, J.M.; Keller, R.; Pyšek, P.; Richardson, D.M.; Saul, W.-C.; Bacher, S.; Dullinger, S.; Estévez, R.A.; et al. Scientific and Normative Foundations for the Valuation of Alien-Species Impacts: Thirteen Core Principles. *BioScience* **2016**, *67*, 166–178. [CrossRef]
64. NECCA. Interreg Europe INVALIDIS 6th Regional Stakeholders Meeting INVALIDIS Results and Management of Invasive Alien Species in Greece—Summary Report (INVALIDIS Deliverable A2.1). Available online: [https://necca.gov.gr/wp-content/uploads/2021/06/5-2021\\_2029\\_18-06-2021\\_INVALIDIS\\_6%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf](https://necca.gov.gr/wp-content/uploads/2021/06/5-2021_2029_18-06-2021_INVALIDIS_6%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%A6%CE%95%CE%A1%CE%95%CE%99%CE%91%CE%9A%CE%97-%CE%A3%CE%A5%CE%9D%CE%91%CE%9D%CE%A4%CE%97%CE%A3%CE%97-%CE%A0%CE%95%CE%A1%CE%99%CE%9B%CE%97%CE%A8%CE%97-%CE%A0%CE%A1%CE%91%CE%9A%CE%A4%CE%99%CE%9A%CE%A9%CE%9D.pdf) (accessed on 28 September 2021).
65. Barralon, E.; Buron, D.; Donini, J.; Labbé, C.; Lerissel, K.; Monnier, B.; Pergent, G.; Pergent-Martini, C. The Corsica Alien Network: A Tool for Monitoring and Tracking Marine Exotic Species. In Proceedings of the 1st Mediterranean Symposium on the Non-Indigenous Species, Antalya, Turkey, 18 February 2019.
66. Comité Régional Corse FFESSM Le Réseau ALIEN. Available online: <https://www.ffessm-corse.com/reseau-alien-corse> (accessed on 22 October 2021).
67. Novoa, A.; Canavan, S.; Cybele, C.; Davies, S.; Dehnen-Schmutz, K.; Fried, J.; Gaertner, M.; Geerts, S.; Griffiths, C.; Kaplan, H.; et al. A Framework for Engaging Stakeholders on the Management of Alien Species. *J. Environ. Manage.* **2018**, *205*, 286–297. [CrossRef]
68. Interreg Europe. Interreg Europe Programme Manual—24 February 2021 (Version 9). Available online: [https://www.interregueurope.eu/fileadmin/user\\_upload/documents/Call\\_related\\_documents/Interreg\\_Europe\\_Programme\\_manual.pdf](https://www.interregueurope.eu/fileadmin/user_upload/documents/Call_related_documents/Interreg_Europe_Programme_manual.pdf) (accessed on 23 September 2021).
69. Hellmann, J.; Byers, J.; Bierwagen, B.; Dukes, J. Five Potential Consequences of Climate Change for Invasive Species. *Conserv. Biol. J. Soc. Conserv. Biol.* **2008**, *22*, 534–543. [CrossRef]
70. Essl, F.; Lenzner, B.; Bacher, S.; Bailey, S.; Capinha, C.; Daehler, C.; Dullinger, S.; Genovesi, P.; Hui, C.; Hulme, P.E.; et al. Drivers of Future Alien Species Impacts: An Expert-based Assessment. *Glob. Chang. Biol.* **2020**, *26*, 4880–4893. [CrossRef]