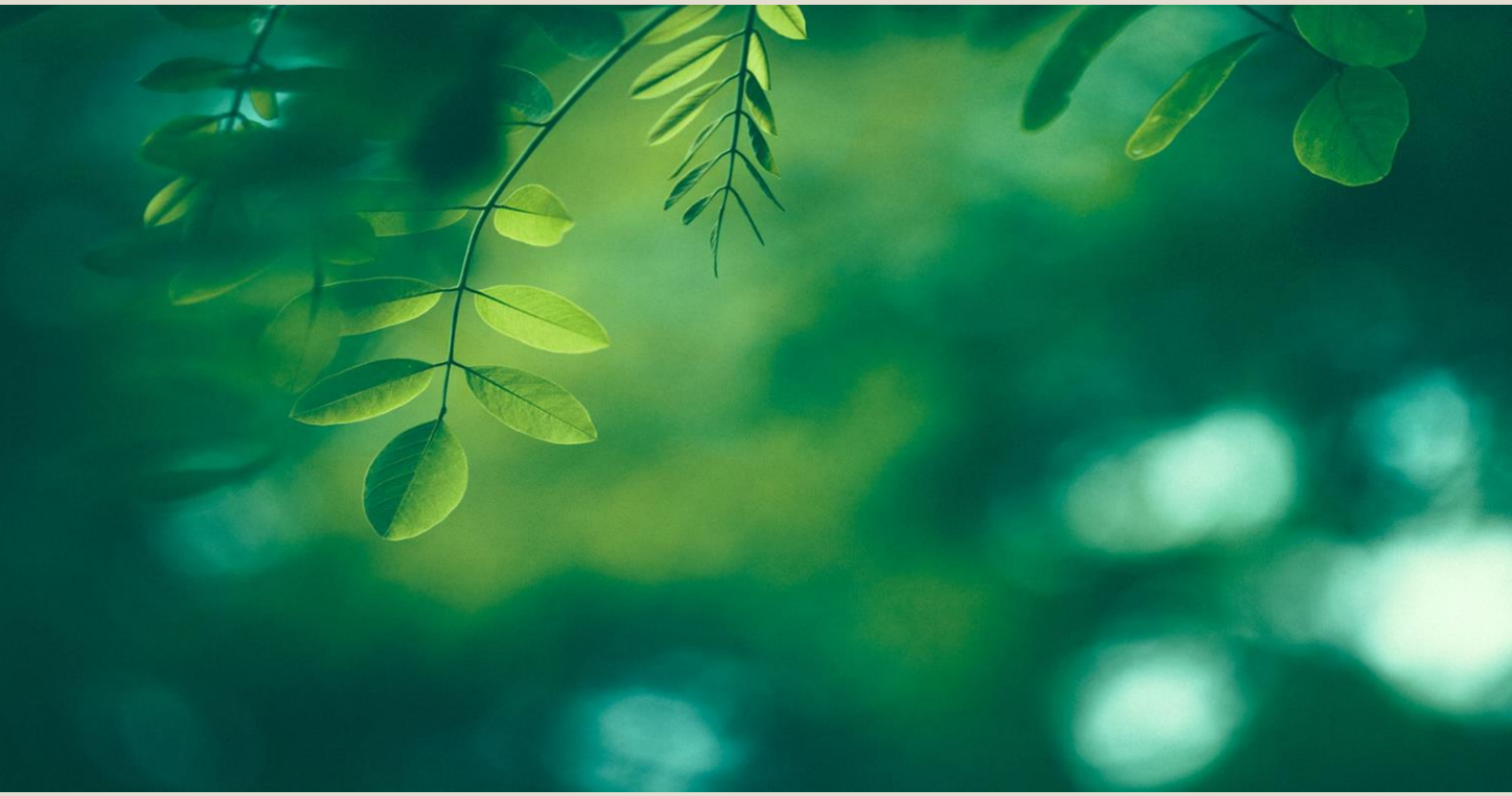
ZEMGALES PLĀNOŠANAS REĢIONS

INVALIS Interreg Europe

Interreg Europe

European Union | European Regional Development Fund



A2.2 SYNTHESIS REPORT

Table of Contents

1. Introduction

1.1. Background

Invasive Alien Species (IAS) are animals and plants, from different parts of the world, which have been introduced through human action to a new natural environment. Some alien species have been brought to Europe deliberately, and others have found their way into the EU as blind passengers on board of ships, or they have been accidentally imported as a contaminant with commercial goods.[1] Not all alien species cause trouble in their new environment; still, many of them, spread and reproduce excessively, feeding on native species, sometimes carrying parasites and diseases that are dangerous to human health and disrupting the balance of ecosystems. IAS cause damage amounting to many billions of euros to the European economy every year and this is why the EU has introduced the IAS Regulation to tackle the problem.[2] At the core of the IAS Regulation is a list of invasive alien species of Union concern. At the same time, it imposes restrictions on the keeping, importing, selling, breeding and growing of the listed species. Member States are also required to take measures for their early detection and rapid eradication, and to manage populations that are already widely spread in their territory. Prevention is a priority as established populations can be expensive to manage and difficult or impossible to eradicate.[3]

Bearing in mind that biological invasions are considered to be the greatest threats to the biodiversity and natural ecosystems, it is essential that EU Member States implement policies that focus on the prevention, early detection, rapid responses, as well as management of IAS. Therefore, INVALIS brings together 7 partners from 7 countries to address common challenges on IAS management and control. In particular, INVALIS enables participating territorial authorities to address common issues associated with: a) knowledge gaps in ecosystems' vulnerability to biological invasions and species' distribution, b) lack of awareness about IAS

[1] European Commission, Invasive Alien Species of Union concern, 2017
https://ec.europa.eu/environment/nature/pdf/IAS_brochure_species.pdf
[2] EU Regulation 1143/2014 on Invasive Alien Species
https://ec.europa.eu/environment/nature/invasivealien/index_en.htm
[3] European Commission, Invasive Alien Species of Union concern, 2017
https://ec.europa.eu/environment/nature/pdf/IAS_brochure_species.pdf

environmental and socioeconomic risks, c) low level of cooperation between public authorities and key stakeholders for the implementation of IAS management measures and d) conflicts of interests.

1.2. Aims & objectives of the report

This Synthesis Report is based on the results of the public dialogue events that were conducted in the countries of the partners of the INVALIS project. The information provided is a compilation of different findings as presented by partners on the situation of IAS prevention and managements in INVALIS regions and is focusing on the spread, management and control of IAS in each partner country. The overall objective of this report is to assemble the main points of public dialogue events in a balanced and coherent manner and provide information on commonalities among partners. Furthermore, this report aims to constitute a source to be considered by INVALIS regions for the design of policy measures.

In detail, Section 2 presents ideas exchanged and findings emerged during the public dialogue events held in each partner country of the INVALIS project. These findings reflect key topics as raised per country on specific types of animals and plants recognised territorially, management of the spread of IAS, national legal frameworks that target IAS management, education and communication as a prerequisite for effective awareness raising, and good practices as applied by France and Latvia and presented during the events. Section 3 addresses common issues identified during the events, including the means applied to prevent, detect and control the spread of IAS, legal and regulatory frameworks on IAS, and public awareness. Last, Section 4 provides concluding remarks and recommendations addressed to INVALIS regions on policy design. The complete feedback as received by partners is included in the Annex.

2. Key topics on IAS as raised per country

2.1. Animals and plants considered as a threat

During the events, all partners presented cases of IAS that affect biodiversity at national, regional, or local level. They analysed the cases of different animals and plants that have been taken out of their original ecosystems, introduced to their territories (whether by accident or on purpose), and destabilised the ecosystem.

Corsica, France

Acacia dealbata tree

The National Conservatory of Corsica is currently working on IAS measures that can be implemented without the use of chemicals. In detail, they focus on different species of Acacia such as Acacia dealbata or Acacia mearnsii. Acacia dealbata reproduces by seeds and can be spread easily. It also has a high resistance capacity to several types of mechanical control. Acacia mearnsii is a fast-growing leguminous tree and is considered as a highly invasive species worldwide.

During the events, the Conservatory presented various methods for the eradication of acacias without the use of chemicals depending on the size of the individuals:

a) In the case of individual plants whose diameter is less than 10 centimetres, two methods were combined; the first consists of mowing / uprooting the plants three times a year, in spring, summer and winter. As acacias produce a lot of seeds, it is necessary to reduce the seed bank as much as possible. A prescribed burning was envisaged on the plots uprooted. A slow fire and very hot temperature (above 140 ° C) is very effective in destroying the seed bank stored in the surface part of the soil and promoting the germination of deeper seeds.

b) For individual plants over ten centimetres in diameter, the strapping method was recommended. Initially, it is necessary to remove the bark of the trees on 90 percent of the trunk in order to considerably reduce the rise of sap without excessively stressing the trees which would then produce very many stump shoots.

It was suggested that implementation of management actions should take place before fruit formation to limit seed dissemination. It is essential to focus on careful removal of the entire root when uprooting and not to leave any fragments of the species in place after each intervention. After the seeds are removed, all parts of the plant can be stored in black plastic bags placed in the sun to activate decomposition. It is also possible to incinerate this green waste without removing the seeds.

It was emphasised that these methods in no way involve the use of chemicals that could harm the environment. The methods proposed can be also used in the case of species presenting the same characteristics as acacias, if the terrain is suitable. A prior botanical and faunistic study must always be considered in the case of the use of a prescribed burn, and the area must not be near dwellings or habitats at risk.

Athens, Greece

Solanum elagnifolium

Neovison vison

Pterois miles

Myocastor coypus

Participants stressed that the goal of eradication is non-realistic for many IAS, which have been long established in Greece; Ailanthus altissima was mentioned as a specific example. Special emphasis was given on the spread of specific species such as Solanum eleagnifolium and Neovison vison, with the second becoming an acute issue in specific areas of Northern Greece. Participants from managing authorities of protected areas reported cases of Pterois miles and Myocastor coypus; the raccoon dog is also expected to reach Greece in the future, as it is already spread in the Balkans.

Zemgale Planning Region, Latvia

Muskrat

Racoon dog

Sosnowsky's hogweed

An expert from the Nature Conservation Agency (DAP) analysed the distribution and dispersal of the most common invasive species in the country: Canadian goldenrod, Himalayan balsam, low juneberry, rugosa rose, Spanish slug, Sosnowsky's hogweed and plantations of rugosa rose. It was explained that Sosnowsky's hogweed and plantations of rugosa rose used to constitute a source of food for animals and prevent dune erosions, but their distribution was not properly controlled, and they are now a threat to local habitats and ecosystems.

The DAP pointed out that the distribution of Sosnowsky's hogweed is monitored in cooperation with local governments and the State Plant Protection Service. Local authorities are mainly trying to limit the spread of Sosnowsky's hogweed, while in some municipalities there are issues with other species such the Canadian goldenrod and the Himalayan Balsam.

With regards to animal species, even though some of them have been stabilised in the environment such as racoon dog and muskrat, there has been no rapid increase in their population. Participants also asked about bark beetles which have been reproducing and destroying tree stands due to the warm winter. The expert clarified that the bark beetles found in Latvia are not invasive species, but they are considered local pests of the ecosystem.

Extramadura, Spain

Water hyacinth

The example of water hyacinth in Guadiana River in Extramadura was discussed in order to show the importance of public awareness. Water hyacinth is considered invasive throughout the world because it grows rapidly and can form thick layers over the water. After more than 10 years of work on the control of water hyacinth, citizens eventually realised the problems posed to the environment and the importance of management and control of IAS.

2.2. Barriers to the effective management of the spread of IAS

The events focused on a series of obstacles including outdated monitoring and detection systems, environmental and financial conflicts of interest, the use of inappropriate distraction means such as chemicals, difficulties in surveillance, lack of funding and regulatory frameworks, and organisational issues when it comes to responsible authorities.

Corsica, France

Detection systems must be updated in order to act early and effectively against IAS introductions. Moreover, the case of Acacias was presented in order to elaborate on the issue of conflicts of interest when it comes to plants that can be used for medicinal purposes. Additionally, economic conflicts were cited in the case of pet stores as they often trade exotic species. Therefore, issuing blacklists of species prohibited from introduction will inevitably have consequences on this market.

Athens, Greece

Many participants expressed their concerns especially regarding the negative consequences of the use of chemical means, while proposing the use of mechanical means as more appropriate. Difficulties in surveillance especially in marine species were pointed out. Participants representing managing authorities of protected areas stressed that plans introduced by managing authorities have a limited impact since they are not applied at national level. Therefore, it is necessary to introduce a national strategy coupled with management actions at national level in order to manage the spread of IAS more effectively.

Lombardy, Italy

Monitoring and control systems need to be updated in terms of accuracy in order to prevent the entrance of IAS to the country. The staff handling those systems needs to be trained by academic researchers who have experience in the field of IAS. To that end, it is necessary to provide more funds and therefore the involvement of the private sector could be of major importance. Authorities should focus less on IAS eradication and invest more in environmental restoration. The need to improve existing policies on the control of the vectors of introduction was also underlined. This could happen by imposing more controls at airports and ports, banning commercialisation of certain types of species and increasing fines for those who try to sell alien species.

Zemgale Planning Region, Latvia

When it comes to the management of IAS, municipalities need to be more active in the quality maintenance of their territories. Thus, it was proposed that each municipality includes the objectives and appropriate actions on IAS, as well as their distribution and containment, in own development planning documents. Municipalities also need to inform landowners on potential risks associated with IAS, and determine their liability in regulatory enactments in cases of failure

of adequate control of IAS. Representatives of municipalities commented that existing plans on the control of IAS cannot be implemented due to the lack of financial resources.

As concerns local and regional reforms, participants indicated that local governments' responsibilities should be assessed prior to implementation. Regarding prevention, preventive measures are considered as the cheapest option, while eradication procedures come at a much higher cost. It is therefore essential to establish a monitoring system that includes data on both existing and new IAS.

Extramadura, Spain

The boost of prevention methods was prioritised as it tackles both the new introduction and the dispersion of already introduced species. It was mentioned that these methods have to respect the environment, maintain the ecosystem, and enhance agricultural and livestock practices. Similarly, public administrations have to work in a more coordinated manner given the fact that there are different administrations involved in the management of IAS and often there are conflicts when it comes to duties and responsibilities.

2.3. National legal and regulatory frameworks

Some INVALIS partners have introduced legal frameworks and regulations to manage the spread of IAS, while others stated that there is a need to reform outdated frameworks. In some cases, implementation issues were identified preventing the effective management and control of IAS.

Corsica, France

The country has recently adopted a legislative tool for issuing blacklists of IAS whose introduction is prohibited. It is anticipated that this new tool will reduce the risk of introducing species into the natural environment; nonetheless, there are implementation difficulties, in particular by professionals who trade IAS such as horticulturalists and pet shops.

Athens, Greece

The Joint Ministerial Decision that implements Regulation (EC) 1143/2014 is almost completed, and is expected to come into force until the end of the year. Its completion was delayed due to disagreements between the Ministry of Environment and Energy and the Ministry of Rural Development and Food regarding competence of jurisdictions. It was also mentioned that there is another project in progress, expected to function as a basis for drafting a national list of IAS. Currently, a National Strategy for Biodiversity also exists, but there has been no progress in the implementation of the six actions envisaged by the Strategy.

Lombardy, Italy

Decree 230/17 focuses on the prevention of IAS but often, the law is not properly implemented. Therefore, information on existing legislation could be shared among regions in order to raise awareness on how to implement the law and regulate anthropogenic activities that are responsible for the introduction of IAS.

Zemgale Planning Region, Latvia

According to the informative report of the Cabinet of Ministers “On invasive alien species and division of competences” (27.08.2019), the Nature Conservation Agency (DAP) is designated as

the coordinating institution responsible for the control of IAS, and the State Plant Protection Service (VAAD) is responsible for the control of invasive plant species. The report includes a number of further actions for the management of invasive species, including the development of legislation to implement European Union Regulation no. 1143/2014. Plant cultivation permits are issued by local authorities as an important management tool that also ensures collection of information on domestically grown and imported plants.

Extramadura, Spain

Decree 570/2020 of 16 June sets the rules to control IAS; the Mimosa, Ailanto, Florida Tortoise, and Asian Hornet Control Protocols have been developed by the Extramadura Board, and have been already approved by the administration.

2.4. Education and communication

All partners highlighted the importance of public awareness as a tool for the management of IAS spread. Nonetheless, in many partner-countries significant gaps do not allow for the proper dissemination and communication research data and results on IAS. As a result, citizens are not engaged in the process, and remain unaware of IAS potential risks for the environment.

Athens, Greece

There is plenty of scientific knowledge available on IAS, but it is not disseminated to all concerned parties nor utilised properly. Participants stated that groups coming directly in contact with IAS, such as hunters, fishers and farmers, could play a significant role in surveillance systems for the early detection of IAS. In addition, local offices could be established in order to arrange functionalities and process information on surveillance systems. Moreover, public awareness campaigns have to be introduced so that the above-mentioned groups, as well as the general public, are informed on IAS. In this regard, there is a need for a generally accepted translation of the term “Invasive Alien Species” to avoid confusions within the general public.

Lombardy, Italy

Italian citizens often underestimate the negative impact of IAS in the environment. This is due to the fact that research findings are not communicated to the public in an accessible language; citizens must be involved in local events where scientific information is shared by experts in layman's terms. To that end, more resources need to be invested in environmental research, communication and dissemination of research results. It was also suggested to develop and promote apps and dedicated forums about the problems caused by IAS, and το involve mass media in order to raise awareness on environmental issues. Moreover, environmental education in schools needs to be improved and include courses on IAS.

Zemgale Planning Region, Latvia

Regarding information on the distribution of invasive species, it was pointed out that the DAP, as an institution, does not have sufficient resources to regularly monitor IAS distribution areas. Each landowner must be informed of the potential risks associated with invasive plant species and therefore, it is essential to develop easy-to-understand and attractive information materials, especially on those IAS that are more difficult to identify and distinguish. Moreover, the public needs to be aware of and understand the importance of preventive action to control IAS. Citizens are often confused when species that used to be planted for artificial purposes (i.e. plantations of rugose rose) are currently being destroyed.

Extramadura, Spain

During the public dialogue event, only 20% of attendees were familiarised with bioinvasions and the management of IAS; based on this, it was highlighted that awareness-raising and social outreach are essential tools in order to manage IAS. The significance of public awareness and easy access to information is considered as an effective and low-cost prevention tool, compared

to the costs of other methods used to monitor and eliminate IAS. It was also suggested to include courses on IAS issues in compulsory education at all levels.

2.5. Good practices

Corsica, France

The National Botanical Conservatory of Corsica is working on different exotic species and potential non-chemical means that can be applied to manage their spread. The Conservatory's work is focusing on different species of Acacia; two main methods were proposed for its management: the first one involves a prescribed burning on the uprooted plots and the second one involves the strapping method. Neither of these methods involves the use of chemicals. Further experiments need to take place in order to test the results of these methods in other species.

The Corsican Environment Office participates in various European programmes which work on public awareness. For example, within the framework of ALIEM, an exhibition on IAS was presented in museums in the partner regions of the project. Interventions in schools also made it possible to educate the youngest through games such as « snakes and ladders », « paper pots » and « happy families ». The general public was sensitised through brochures, meetings and field trips focusing on the fact that IAS are present everywhere and they threaten biodiversity. Several networks of exchange of information are in place like ALIEN at sea level. The agents of the Office of the Environment also participate in a permanent watch during their day in the field and citizens are able to contact the authorities when they are faced with a species they do not know.

Zemgale Planning Region, Latvia

With regards to public participation and awareness, Latvia and Lithuania have introduced the cross-border project: "Joint resistance to bioinvasions for sustainable agriculture and management of natural resources"/ "TEAMWORK", according to which public reports on the distribution of invasive species are available through the platform dabasdati.lv or other

applications. Representatives of both LDF and the Institute for Environmental Solutions confirmed the positive experience in using the information provided by dabasdati.lv. Social media accounts have been created to promote the portal and mobile applications and attracting public attention.

In connection with the creation of the European Bird Atlas, an application was developed giving a great impulse to public involvement activities and the increasing the number of active users (around 900 per year). The data of the portal database are used in various studies, including in the development of nature protection plans, especially in the identification of protected species and sites of invasive species. The information included in the database also allows experts to be adequately prepared for planned field studies.

The DAP prepares various informative materials. A typical example is the informative material on the Spanish slug, which resulted to an information campaign. Until now, the DAP has received 49 reports on Spanish slug's occurrence and widespread this year (2020).

3. Common issues identified

3.1. Prevention and early detection methods

Preventing the introduction of IAS is considered by INVALIS partners as the most effective strategy and first line of defence in IAS management. Still, some species inevitably escape detection and become established. With this in mind, partners stated that it is essential to focus on the update and modernisation of prevention systems. Prevention of the introduction of IAS is the most cost-effective management option but when it fails, early detection and rapid response must be applied. When new invasive species infestations are detected, a prompt and coordinated response can reduce environmental and economic impacts. This action could result in less resource damage than implementing a long-term control program after the species is established.

3.2. Management and control methods

Management of IAS usually utilises a range of control methods, either alone or in combination, to achieve a successful outcome. During the events, the importance of environmental-friendly methods was highly considered as an alternative to chemical or mechanical methods. All INVALIS partners highlighted that even though chemical methods could be more effective, such approaches do not respect the environment. The National Botanical Conservatory of Corsica proved that it is feasible to control the spread of IAS through the use of means that do not include chemicals and therefore do not harm biodiversity.

3.3. Legal frameworks

Most partners focused on the issuance of lists of IAS, which are considered as the most important aspect of effective control. A typical example is the legislative tool that was adopted in Corsica for issuing blacklists of IAS whose introduction is prohibited. This type of regulation is also at the core of EU Regulation 1143/2014; species included in this list are officially recognised as IAS, subject to restrictions and measures set out in the Regulation. Similarly, this kind of lists can be introduced at national, local or regional level and contribute to the effective regulation and

control of IAS. In addition, existing legislation needs to be reformed in order to become more detailed and regulate the exact anthropogenic activities responsible for the introduction of IAS. Updated legislation could play a significant role in controlling trading of IAS in pet shops and plant nurseries.

3.4. Public awareness

Public awareness on IAS was prioritised by all partners as it promotes and encourages efficient IAS management. In most cases, even though scientific knowledge is available, it is not communicated to the public in an easy and accessible language. At the same time, when public awareness is used properly for effective prevention, detection, and control of the spread of IAS, it can be a low-cost tool compared to other methods. Education can also be used as a tool to boost public awareness; some partners highlighted the fact that environmental courses at schools usually are not up-to-date, and therefore students are not taught about the existence of IAS.

4. Concluding remarks and recommendations for policy design

4.1. Effective prevention and detection

To achieve effective prevention and detection of IAS it is essential to focus on exchange of information among interested parties. In many cases, this can happen through the use of online applications and platforms. For instance, an institution could share research results on IAS through online applications and platforms designed for the dissemination of results among relevant authorities. As it was already mentioned, Latvia has launched an online platform where valuable information on IAS is available and can be shared. Additionally, effective detection can take place through information campaigns, distribution maps, guides for the recognition of IAS, citizen science, but also training of staff in the responsible public authorities and relevant professional bodies. Ultimately, the establishment of local offices, which receive and process such information, was proposed during the events as a measure in this direction.

4.2. Appropriate management and control

It is crucial to manage and control IAS in an environmental-friendly way. To achieve this, the use of pests and chemicals should be avoided, and new experiments must be launched to apply methods that protect biodiversity. In cases where the application of alternative methods is not possible, chemical methods could be used in very limited areas, only after having assessed all risks to both the environment and the population.

The restoration of damaged ecosystems and the use of natural enemies of IAS (provided that these are not IAS themselves) was also proposed as an alternative to chemical and mechanical means. It has to be noted that when the options available are limited, mechanical means should be preferred over chemical ones. Other measures towards a more environmental-friendly management include the declaration of some IAS as species eligible for hunting, reducing environmental risks, as well as the promotion of commercial use of specific IAS that are edible (especially fish fauna) or can be used for pharmaceutical purposes.

"Territorial" management as a means towards the control of specific activities was also proposed during the events. This could be achieved through the establishment of a more active role of municipalities in controlling IAS, since they are in direct contact with property owners or managers. Last, legal frameworks on IAS lists could be coupled with policies that assess environmental and socio-economic risks and potential losses. There are species that are considered as invasive but at the same time could constitute a source of income to farmers or be used for medicinal purposes. For instance, a study conducted in 2016 demonstrated that Schinus molle L., Catharanthus roseus (L.), Datura stramonium L., Opuntia stricta (Haw.) Haw., Opuntia ficus- indica, Sambucus canadensis L., Ricinus communis L., Melia azedarch L., Argemone ochroleuca and Eriobotrya japónica can be used for treatment of various diseases such as chest complaint, blood purification, asthma, hypertension and infertility[4].

Consequently, while compiling the list, individual assessments of the environmental, social and economic risks of each species need to be pursued.

4.3. Dissemination and communication of research

Investing in dissemination is essential in order to communicate research data and results to the public. In most (if not all) cases, the public was not aware of IAS due to the lack of accessible information. Data is often shared only among researchers, and it is not communicated to authorities, organisations and the general public. Scientists must be supported in order to learn to present findings in an accessible language, because society needs their expertise, perspectives, and evidence-based problem-solving skills for the future.

In particular, the lay public needs to be reminded of the role of research; critical thinking and rigorous analysis of facts to reach evidence-based conclusions is needed in order to combat IAS and secure biodiversity. Science communication can also happen through the use of social media platforms, including Twitter, Facebook, Instagram, and Linkedin. Finally, education could be used

[4] https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5566149/

as tool to communicate data through the update of current curricula and the inclusion of specific courses in IAS.

ANNEX

National Center for Environment and Sustainable Development

Greece

Summary report of the INVALIS public dialogue event held in Greece Agenda of the Public Dialogue Event of INVALIS project –Protecting European Biodiversity from Invasive Alien Species (INTERREG EUROPE) Thursday, October 22nd, 2020 10.30 Petros Varelidis, NECCA Welcome and Introduction 10.35 Orfeas Roussos, NECCA The INVALIS project: progress and outcomes 10.45 Nikolaos Krigas, ELGO- Dimitra Invasion of Solanum elaeagnifolium in Greece: from urban weed to the countryside and NATURA 2000 sites 10.55 Discussion on Theme 1: Controlling the spread of invasive alien species 11.15 Panayiotis Dimopoulos, University of Patras Guide and web platform on alien plants in Greece and protected sites 11.25 Dimitris Bakaloudis, Aristotle University of Thessaloniki LIFE ATIAS - Confronting the threat of IAS in Northern Greece through the development of systems of early warning and information on mammals 11.35 Discussion on Theme 2: Managing invasive alien species in ways that reduce socio-economic and environmental risks 11.55 Ioli Christopoulou, The Green Tank Invasive Alien Species: Proposals & measures for an effective policy 12.05 Mariana Arianoutsou, National and Kapodistrian University of Athens Horizon scanning and risk assessment of species: two crucial steps in drafting a national list of invasive species 12.15 Discussion on Theme 3: Key aspects of efficient invasive alien species' control 12.35 Proposals and discussion on them 13.25 End of the event

Moderation: Christine Kapetanopoulou, NECCA

Partner organising the meeting: Natural Environment and Climate Change Agency (NECCA)

Partner members organising the meeting: Petros Varelidis (NECCA Director), Orfeas Roussos (INVALIS Project Manager), Christine Kapetanopoulou (INVALIS Communication Manager)

Details of the meeting:

Number of completed pre-consultation questionnaires: 21 Number of registered participants: 47

Number of completed evaluation questionnaires: 16

Number of participants from each category of the target groups:

Resident/member of the public	4
Local public administration	8
Environmental NGO/Agency	2
University/Research centre	9
Managing Authority of protected areas	19
Sectorial stakeholder	5

Participants' interventions concerning theme 1: Controlling the spread of invasive alien species

Participants stressed that there is a difference between a simple inventory of IAS and their prioritization based on risk assessments, the second one being a crucial step in controlling the spread of IAS. They also pointed out that the goal of eradication is non-realistic for many IAS, which have been long established in Greece. Ailanthus altissima was mentioned as a specific example. The focus should be instead in establishing a monitoring system and controlling their spread, especially in protected areas. Prevention of fish enrichments was identified as an important control measure especially in lakes and the involvement of Department of Fisheries was demanded. The possible effect of climate change in the spread of IAS was also mentioned.

The effectiveness of some tools of the Rural Development Programme, which are supposed to promote sustainable development, was questioned, since these favor in some cases the spread of IAS. This is particularly important, since many biological invasions have their origin in the agricultural sector, and the funding sources in this area are considerable and could be utilized in the management of IAS.

Some presentations focused on the spread of specific species such as Solanum elaeagnifolium and Neovison vison (the second one being an acute issue in specific areas of Northern Greece). Participants from managing authorities of protected areas reported the recording of IAS such as Pterois miles or Myocastor coypus in their area of responsibility, but also complained about the lack of response from the central authorities, when these reports were sent to them. The question was raised, if there is a provision regarding species, which are expected to reach Greece in the future, e.g. the raccoon dog (Nyctereutes procyonoides), which has already spread in Balkans. This issue was addressed by the presentation on horizon scanning.

Participants' interventions concerning theme 2: Managing invasive alien species in ways that reduce socio-economic and environmental risks

Many participants in the public consultation had expressed their concerns especially regarding the negative consequences of the use of chemical means, whereas the use of mechanical means is considered as more acceptable. Representatives from managing authorities proposed the declaration of some IAS as huntable species as a management measure reducing environmental risks, although there was also a disagreement on this issue. The restoration of damaged ecosystems and the use of natural enemies of IAS (provided that these are not themselves IAS) was proposed as an alternative to chemical and mechanical means. Another proposal was the promotion of commercial use of specific IAS, which are edible (especially fish fauna) or can be used for pharmaceutical purposes. This could contribute to the control of their population through the increased pressure on them.

Participants' interventions concerning theme 3: Key aspects of efficient invasive alien species' control

The role that groups coming directly in contact with IAS (hunters, fishers, farmers etc.) could have in a surveillance system for the early detection of IAS was highlighted by participants. The establishment of local offices, which receive and process such information, was proposed as a measure in this direction. The importance of public awareness campaigns in order for the surveillance to work was stressed. The difficulty of surveillance especially in marine species was pointed out.

Urban landscapes, farmlands (especially when pesticides are widely used, which favor resistant species), easily accessible areas, in which animal species can be released, and generally areas affected by human interventions, such as changing the course of rivers or drying up wetlands, were identified by participants as areas prone to biological invasions. On the other hand, maintaining natural ecosystems with well-structured and non-disturbed ecological relationships can act as a barrier to biological invasions, as it was shown in the example of Solanum elaeagnifolium.

The representative from the Ministry of Environment and Energy informed the other participants on the new developments in the area of legislative measures on IAS. The Joint Ministerial Decision implementing the Regulation (EC) 1143/2014 is almost completed and is expected to come into force until the end of this year, the main obstacle being the disagreements between the Ministry of Environment and Energy and the Ministry of Rural Development and Food (representatives from both ministries participated in the event) regarding the jurisdiction of each. Another project comprising an inventory of IAS and their prioritization based on risk assessment is on its way and is expected to function as a basis for drafting a national list of IAS. The importance of drafting this national list of IAS was stressed, since this is essential for the protection of biodiversity in Greece. It is even more important than the list of IAS of Union concern, since the later one includes species not relevant in Greece, whereas there are other species in Greece which pose a serious threat to the ecosystems and for various reasons are not included in the list of Union concern.

There was a demand to improve the control of vectors of introduction (the ships were mentioned as a specific example), whereas the necessity of updating legislation through bans on import of specific species was stressed and drafting protocols for management of specific species was also proposed. Improving controls in pet shops and plant nurseries in order to act against trading of IAS was also brought up.

Participants representing managing authorities of protected areas pointed to the need not only of a national strategy, but also of management actions on a national level, since the plans made from the managing authorities themselves can only have a limited impact. The importance of cooperation with neighboring states was also mentioned, especially on the example of Neovison vison. The idea of a more formal network of experts, authorities, environmental agencies and organizations for the exchange of information and good practices was brought up during the event. The importance of meetings such as this public dialogue event as a step in the building up such networks was stressed.

Participants' other interventions:

Participants proposed possible funding sources for projects related to IAS management, such as the Rural Development Programme or Regional Operational Programmes.

Another side issue which was mentioned is the terminology used in the subject of IAS, especially the translation of the term "invasive alien species" in Greek, on which there are some different views. The importance of this is to avoid confusion in the general public.

Evaluation of the meeting:

The following average scores in the 7 questions of the evaluation questionnaire were recorded:

- How would you rate the quality of the organisation of the meeting?

4.19 (Good)

- Do you think that the time allocated to each topic was sufficient?

3.44 (Just enough time)

- How would you rate the quality of the proposed policies?

4.00 (Good)

- How would you rate the quality of the discussion?

4.50 (Very Good)

- Will you support the implementation of the proposed policies?

4.07 (Significantly)

- Do you agree that the meetings will lead to improvements in the proposed policies?

4.25 (Agree)

- The meeting as a whole has been appropriate and productive.

4.38 (Agree)

Overall, the participants seem to be satisfied with the organization of the meeting, the proposed policies and the discussion, while they were less satisfied with the time allocated to each topic. There is a will to support the implementation of the proposed policies, whereas the view was also expressed, that it is too early to answer such a question due to the lack of such policies in Greece. There was a general agreement on the need and the productivity of such meetings.

Regarding the question of issues that have not been covered in the meeting, participants mentioned presentations on animal groups like marine species, reptiles and insects, and also delving deeper into the subjects of synergies and coordination among stakeholders, possible funding sources for management measures, possible measures for controlling the spread of IAS and the possible creation of a network between the managing authorities of protected areas.

Suggestions for future meetings were the following:

- Focusing on designing a mechanism for the control of IAS
- Leaving more time for participant interventions and presentations by them of IAS confronted in their area of responsibility, as well as the measures applied for their control or eradication
- Delving on the management of alien fish species and to the question of which species have to be included in the national list.

Conclusions and policy advice:

The lack of coordination between various actors in the field of IAS was identified as a serious problem by participants coming from different background, so action should be taken in order to address this issue. This event as well as the previous regional stakeholder meeting demonstrated that there is plenty of scientific knowledge available on IAS in Greece. At the same time though, there is no central collection of this knowledge, in order for it to be available to all concerned parts and be utilized for different purposes. The lack of contacts between stakeholders coming from different backgrounds prevents synergies from being created. A characteristic example that came up in the course of the discussion was that public authorities were not aware of a project carried out by a university, although it is very relevant to their tasks and could be utilized for this purpose.

There was a general agreement on the necessity of projects such as INVALIS, which bring together stakeholders from various backgrounds and make synergies possible. It is important to consider the suggestion, that this cooperation receives a more formal and permanent character. Bringing the managing authorities of protected areas together under the supervision of Natural Environment and Climate Change Agency is expected to contribute to a better coordination of policies.

The drafting of a national list of IAS is a crucial step in addressing the issue. The prioritization of species based on risk assessment and horizon scanning should form the basis of this national list. The national list should be regularly updated to reflect new developments, and feedback from relevant stakeholders should be taken into account in the updating procedure. There should also be a prioritization of pathways of entry of IAS. The Joint Ministerial Decision for the implementation of Regulation (EC) 1143/2014, which is expected to come into force until the end of 2020, should include clearly defined responsibilities for each public body.

Having in mind the general demand for a national policy and/or management actions at a national level, which was brought up during the event, it must be mentioned that a National Strategy for Biodiversity does exist and protecting the biodiversity from IAS is one of the targets set in the National Action Plan to implement this Strategy. However, it was pointed out during the event, that there has been no progress in the six actions envisaged by the Plan. This should be taken into account in the new National Plan, making sure that the targets are realistic and can be met. Possible specializations depending on regions and gates/pathways of entry should be explored.

Campaigns for raising public awareness, distribution maps, guides for the recognition of IAS, citizen science, but also training of staff in the responsible public authorities and relevant professional bodies are all vital steps for the early detection and effective management of IAS. There are important developments in this area (the guide and web platform on alien plants presented during the public dialogue event is a good example), but it must be ensured, that all relevant stakeholders (and also general public) have access to this knowledge. The surveillance system for the early detection of IAS should involve groups, which are the first to come into contact with IAS (hunters, fishers, farmers etc).

Better utilization of funding sources for projects related to IAS should be made, considering for example funds of the Rural Development Programme, since agriculture is an important vector of IAS. In general, protecting natural ecosystems is very important, since they can function as a barrier to biological invasions in protected areas. The goal of eradication would be feasible only for a part of the IAS established in Greece. It is non-realistic for many long-established IAS, for which the focus should be instead in monitoring and controlling their spread, especially in protected areas.

Regional Ministry for environment and rural, agricultural policies and territory – Regional Government of Extremadura

Spain

Summary report of the INVALIS public dialogue event held in … (name of region)		
Partner organising the meeting:	Council for the Ecological Transition and Sustainability. Extremadura joint. JUNTA DE EXTREMADURA Consejería para la Transición Ecológica y Sostenibilidad	
Partner members organising the meeting:	*- María Jesús Palacio González *- Francisco Antonio Hueso Fernández *- Javier Pérez Gordillo	
Details of the meeting	Número de cuestionarios completados antes de la consulta:	28
	Número de participantes registrados:	> 140
	Número de cuestionarios de evaluación completados:	106
	Número de participantes de cada categoría de los grupos destinatarios:	????
KIPs	Cuestionarios de consulta previa completados: 20 cuestionarios Asistencia: 30 participantes Cuestionarios de evaluación completos recibidos: 20 cuestionarios	

Participants' interventions concerning theme 1 (400 words):	In relation to this issue, it should be noted mainly the disrecognise of the problem of bioinvasions by a large number of attendees. Only 20% of attendees, if they were aware of the problem and of these a percentage less than half, knew well the problem and the management of the IAS. In view of this situation, the meeting worked by making known the existing legislation and its implications for the different sectors. It should be noted that many attendees did not understand that some species were officially declared invasive and others that they were included why they were not excluded. In response, attendees were explained the inclusion mechanisms and criteria to be used. At this point, it should be noted that many attendees confuse between exotic species and those considered invasive aliens. They were explained what role each of the sectors present at the meeting plays in the introduction and dispersion of IAS. The pathways of entry, the existing dispersion mechanisms and what should be done by the people who are part of these sectors in the presence or detection of an IAS, as well as the mechanisms to prevent further introductions and dispersion of IAS already present.
	The participants understood everything explained and were answered to alltheir doubts in this regard, understanding the importance in being an activepart of the prevention and control of these species through the Alert Network of Extremadura, as through the "App EASIN (European Alien Species Information)".
	In this part, the disrecognise identified at the previous meeting on existing obligations to the ISS was found, both from the administrations and holders of these species. Aspect that was clarified when they were shown the risks and costs of controlling and eliminating these species. In Extremadura the case of water hyacinth in the Guadiana River, is an example, very representative since after more than 10 years of work, society has realized the problem and the importance of its control and minimization of the risks that its presence carries. The problem is that thisknowledge and assuming the importance of acting fades when we talk about other invasive alien species, which are not perceived by the Society as invasive or causing problems for biodiversity, the economy or human health, so they are not considered as a problem. At this point, the importance of carrying out action plans against this species was

Participants' interventions concerning theme 2 (400 words):	noted and these have been made available to citizens in official means, so that they can be known and in this way, that citizens have tools and can make use of them. To support this measure, the Mimosa, Ailanto, Florida Tortoise and Asian Hornet Control Protocols havebeen developed from the Extremadura Board and are already being officially published from this administration. The economic impact and cost of these species is essential to be able to prioritize control and elimination actions and establish long-term strategiesto be able to reduce the risks of existing ones. The meeting highlighted the importance of the need for risk analysis for the introduction of new species in the countries and Autonomous Communities, and that it is legislate (Decree 570/2020 of 16 June), although it is noted from those present that it must be more restrictive and even that instead of a list of ISEs, a whitelist of the species that can be marketed should be made, since the different economic sectors, will continue to look for new species, hybrids, etc., in order to provide solutions to social demand. At this point it is very important to recognize the importance of awareness and information to the Society and the different sectors as it is a very effective and low-cost prevention tool whencompared to the costs of monitoring and eliminating species present in the natural environment.
Participants' interventions	It is very important to highlight prevention as a measure to reduce new introductions and dispersal of already introduced species. Awareness-

concerningtheme 3 **(400 words):**	raising and social outreach should therefore be worked on with specificsectors. The participating sectors have shown that in order for good sectoral practices to combat the ISS to pass because these sectors are well informed. Fact that facilitates the understanding and need to act in frontof these species and therefore to implement the established good practices. During the meetings, the need for all public administrations to work in a coordinated manner and with an intensity comparable to their competences has been highlighted. This is important given the concurrence of competences between different administrations and sometimes means that no administration takes responsibility for the fight against a particular ISS. Similarly, personal public administrations, resources, collaboration, unification and sharing of existing information, etc., aspects that make the Company's perception of this is that there is nojoint strategy that can improve current results. Although to a lesser extent, the importance of using methods more in line with nature conservation in agriculture and livestock was commented on, avoiding aspects such as monocultures (margin removal, transition zones, etc.) and enhancing agricultural and livestock practices more in line with the environment in which it is located, enabling the resilience of habitats and ecosystems to be maintained. At this point, mention was made of the importance of Europe, through theCAP, legislation, etc., of trying to more effectively reverse this production methods that favour the dispersion

	and settlement of ISS.
Participants' other interventions(400 words):	In addition to these treated aspects, it was commented on the importance that may have, the use of references (actors, athletes, influentials, etc.) in the dissemination and social awareness, since the actions of some have increased the sale of some species and the subsequent problem once theybegin to be abandoned.

Evaluation ofthe meeting (200 words):	The review has been positive, albeit with a feeling of not being able to perform all the actions that have taken us so long to plan and what wasimportant about what we were doing. The sectors have been very participatory and have been very receptive andto the importance of acting and knowing.
Conclusions and policyadvice (900 words):	Being immersed in a global pandemic and the way it has affected us has influenced the achievement and realization of activities as prepared (8meetings in the 8 largest cities of Extremadura and one general in the Capital Extremeña, in addition to three events remaining between faculties of the University of Extremadura). However, the work done has given us a broad vision of the perception that citizens have about the ISS. The main conclusion is given by the interest and misinformation that most participants have about the problem of the ISS. It is important to have found that a very important issue is information at different levels and adapted to each of the social groups and sectors of society, so that this information can be better reached. How it is reported and the channels to use. These are very important aspects, as there must be clarity in the messages, to avoid the false news and conflicting interests, which may exist in the management of the ISS. And of course, use the means that we have today, adjusted to each of the social groups and develop them in all areas.

	In education, it has been seen that it is important to include this problem in a cross-verse way at all levels of compulsory education and its use in the university field, as a problem that many future professionals will encounter in the development of their professional activity. The involvement of citizens, associations (of all kinds), economic sectors, the professional world, the security corps, the university world and research, etc., is essential to be able to develop effective policies to act in front of the ISS. And this aspect has so far been left to "politicians" (representatives of society), who are often est distanced from society. The development of these policies must be done at all levels, from the local level (City Councils), to the European level, with the participation of citizens. And above all, there is the idea in the participants, of the problem that we have right now and what its consequences may be if we do not start acting and be aware of it.

Lombardy Foundation for the Environment

Italy

Partner organising the meeting: Lombardy Foundation for the Environment (FLA)

Partner members organising the meeting: Anna Occhipinti, Daniele Paganelli

Details of the meeting

Number of completed pre-consultation questionnaires: 36

Number of registered participants: 145

Number of completed evaluation questionnaires: 15

Number of participants from each category of the target groups:

Resident/member of the public	6
Local public administration	7
Environmental NGO/Agency	7
Regional Agency	7
University/Research centre	13
Managing Authority of protected areas	6
Cluster organisation	13
Sectorial stakeholder	72
Other	14

Participants' interventions concerning theme 1: Analysis of policies on Invasive Alien Species

Most of the participants were already well informed about the policies against the invasive alien species in Italy and the discussion on this topic brought up various interesting aspects.

The most relevant suggestion was to improve the policies for the control of the vectors of introduction: more controls at airports and ports, the ban of commercialising certain types of species, and increased fines for those who try to sell alien species.

More accurate monitoring and control systems will be fundamental to prevent the entrance of IAS to a country and it should be performed by specialised staff, trained by academic researchers who have experience in the field of alien species and their ecology. For this purpose, it will be necessaryto

provide more funds, focusing on vulnerable areas. In this case, it could be useful to improve the involvement of the private sector.

Another aspect that emerged was the importance of improving the information related to problems caused by IAS: an active participation of the citizens in the surveillance of the territory could be useful for the contrast of IAS.

Related to the active contrast actions against IAS, the participants' opinion was that Authorities should focus less on IAS eradication, but increase investments in environmental restoration and a more accurate management of the environment.

Participants' interventions concerning theme 2: Education and communication

The public event pointed out that the problems caused by IAS are underestimated by citizens, because the message passed from researchers to citizens is often unclear. Thus, it is important to involve citizens in local events where scientific, correct information should be passed on by experts. The communication skills of the expert is fundamental: nowadays it is very easy to obtain information through the Internet and social media, the expert opinion on a such delicate topic should be more relevant compared to the opinion of a layman, who in the majority of cases doesn't have the competence to evaluate the impacts of IAS on the environment.

The only way to reduce the gap between the level of the risk perception and real risks is to invest resources and time in the communication processes. These days it seems that environmental problems are hot topics and citizens are quite aware of them, so it is highly recommended that theresearchers focus their efforts on the increase of the citizens' knowledge, and translate their scientific results into something more understandable to the layman.

For example, an idea that emerged during the discussion was to develop and promote apps and dedicated forums about the problems caused by IAS; moreover, there was the suggestion to involvethe generalist mass media in order to obtain more attention on this environmental problem. Another suggestion was to improve the level of environmental education in schools to students of all ages through a more in-depth communication, aiming to underline the success obtained in the management of IAS. Moreover, it was considered important to increase the training, given to the staff in airports and ports, and to the companies directly involved in import/export activities, on problems

caused by IAS.

Participants' interventions concerning theme 3: Good practices and case studies

Concerning theme #3, the presentation of two projects related to the safeguard of the local biodiversity was appreciated by the participants and they highlighted the importance of encouraging this type of projects. Moreover, it was pointed out how the problem of lack of funds for environmental research is one of the main obstacles for safeguarding local biodiversity.

Moreover, in order to support the local biodiversity, it emerged that it would be better to improve the management of the territory with more attention on the control of those activities that cause environmental problems.

Finally, the role of agriculture was highlighted too: with a more accurate and environmentally friendly management of the fields, the local biodiversity will have more chance to improve.

Evaluation of the meeting:

Considering the circumstances due to the pandemic, all the participants were satisfied about the organisation and the contents of the webinar. The webinar was shared using YOUTUBE platform and it had 155 visualisations.

In the following pictures, we summarise the results of the evaluation questionnaire filled in by the participants. The Y-axis shows the number of responses and the X-axis shows the Likert scale reported in the guidelines for public dialogue events proposed by Latvia

Figure 1: Answers to question #1

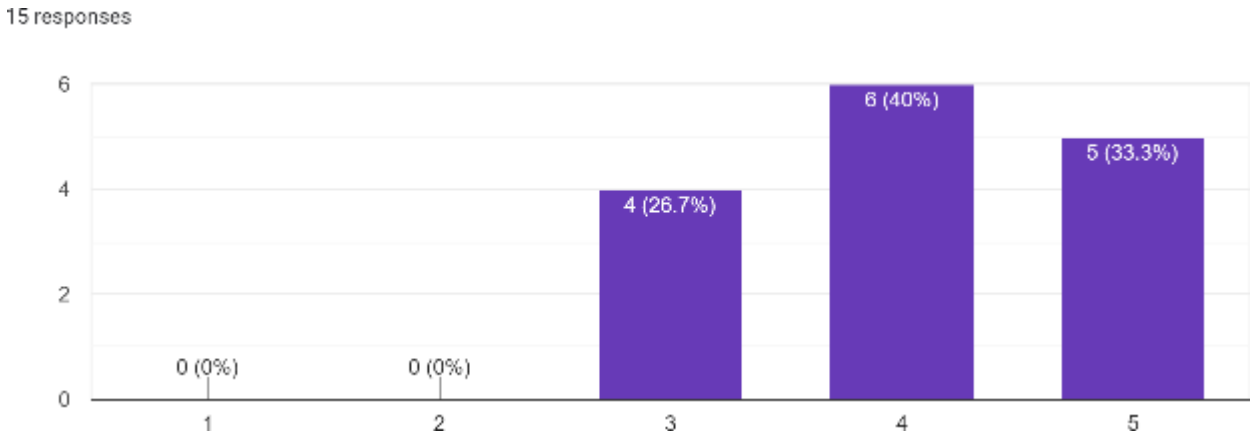


Figure 2: Answers to question #2

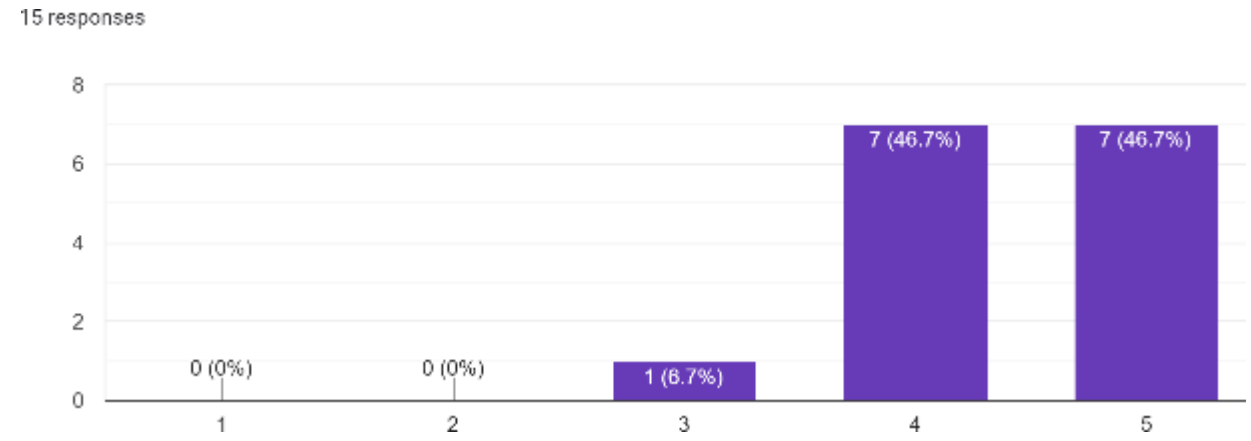


Figure 3: Answers to question #3

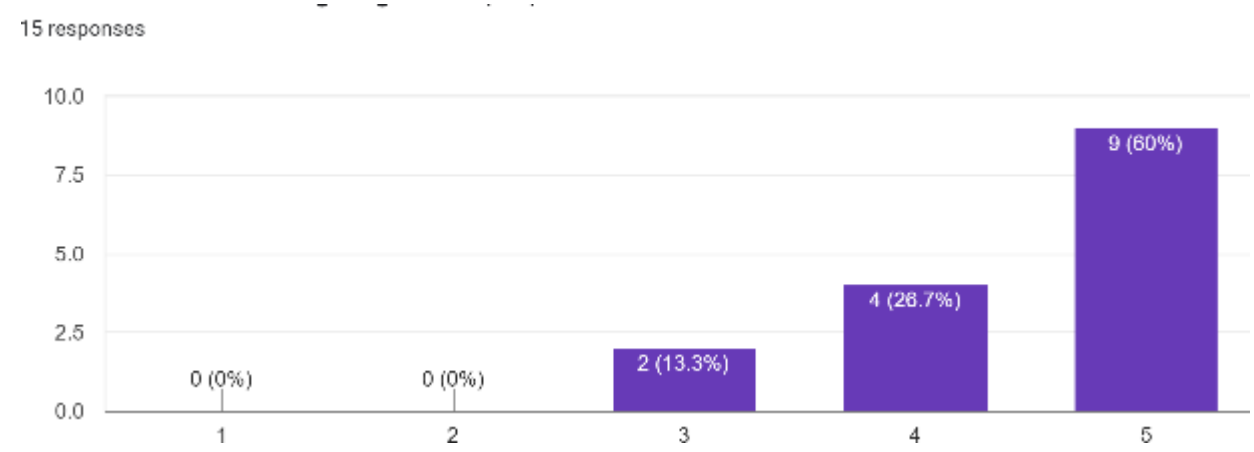


Figure 4: Answers to question #4

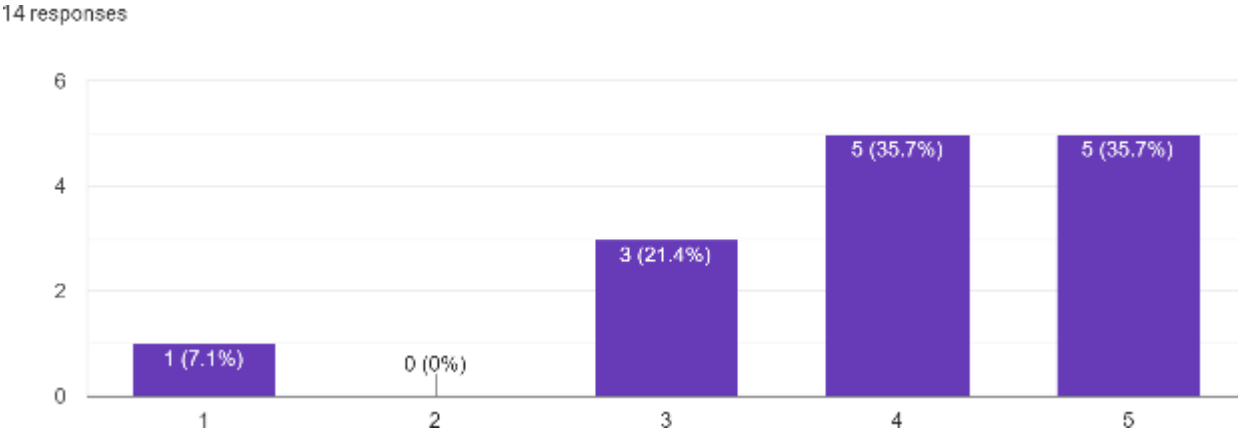


Figure 5: Answers to question #5

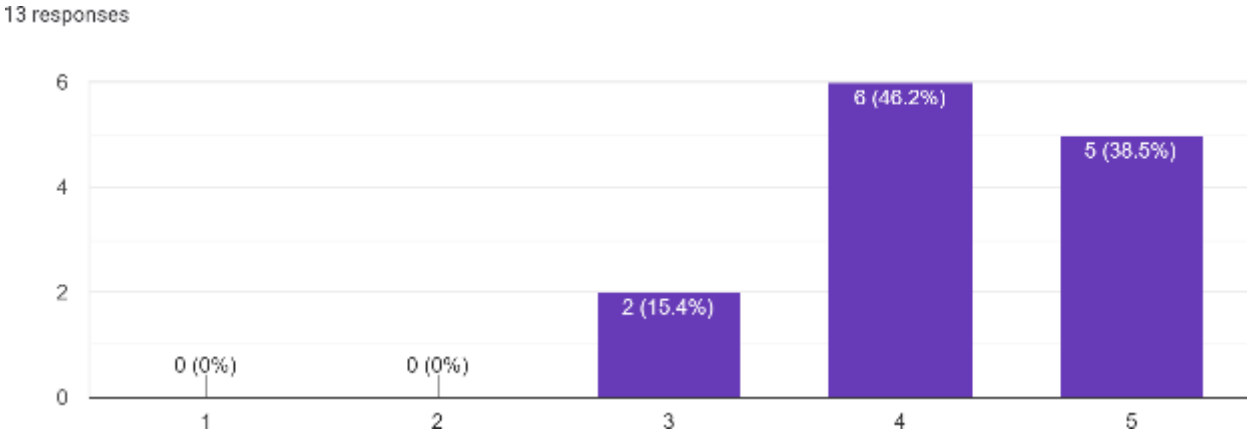


Figure 6: Answers to question #6

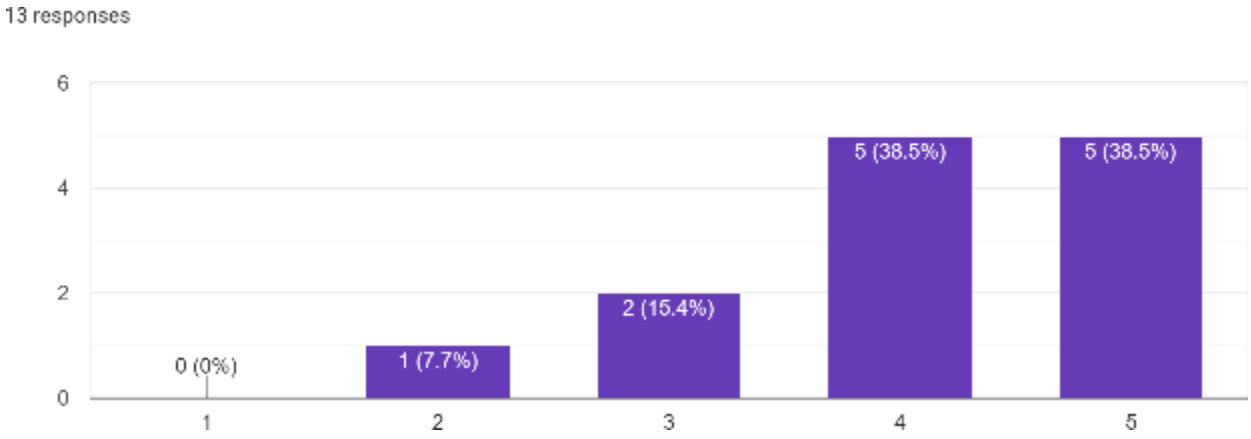
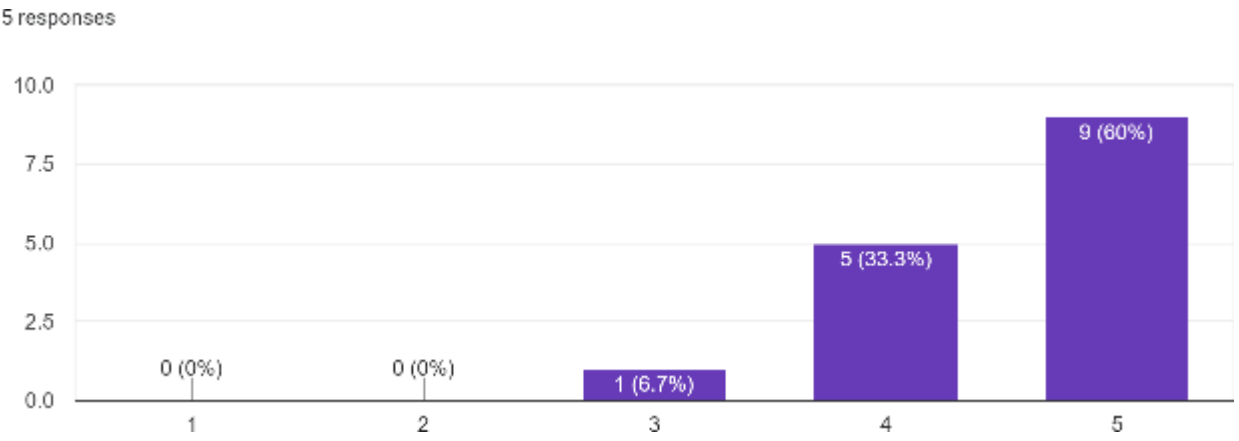


Figure 7: Answers to question #7



Conclusions and policy advice:

The management of IAS is not always easy to address. A series of problems, such as the lack of clear policies, of economic resources, of specialised staff and a low level of awareness of the problems caused by IAS often interfere with the success of the actions.

We support the idea that policy and management options may be determinant for the ecosystem vulnerability to IAS and conservation programs should be a stable part of the regional legislation. Also, it would be better to have a more detailed legislation shared between Regions and Countries to regulate the anthropogenic activities responsible for the introduction of IAS, especially considering free trade and movement existing throughout the European Union.

Generally, the combination of ecological characteristics of the areas associated with the management actions against IAS and the surrounding anthropogenic activities are the main factorsthat contribute to environmental vulnerability to invasive species.

Considering that the ecological characteristics are intrinsic to an environment and constitute a non-modifiable factor, the only way to decrease ecosystem vulnerability to IAS is to make relevant changes to the management of the area and to the surrounding anthropogenic activities that mightbe controlled through specific regulations.

In this context, conservation programmes would require long-term funding security, but this is rarely available, except in some national programmes. Nevertheless, requalification projects requirea longer-term perspective when securing funding for restoring populations or population monitoring programmes. Securing adequate funding to enable the implementation of these types of actions is seen as one of the key ingredients to success.

Furthermore, an early detection and eradication are essential management tools to protect the native biodiversity, but they should be encouraged only where appropriate and feasible. However, they can only be carried out for a limited proportion of the IAS established in a country: for many long-established IAS present in the wild, eradication will simply not be feasible. If from an ecological point

of view eradication is feasible, there should be other conditions that support this process such as an adequate public support and political commitment and sufficient funds available Finally, in the management of alien species, it is fundamental for citizens to be made aware of the problems caused by IAS to the local biodiversity: incisive actions are possible only if they are supported by society. This aspect could be even more important (or at least of the same importance) in comparison to technical and scientific aspects.

Hence, it would be beneficial to increase manager and citizen awareness on the ecological and economic problems caused by IAS. There are different ways to involve citizens in environmental projects, from citizen science projects monitoring alien species, to dedicated events with the aim ofincreasing citizen knowledge on the impacts of IAS on the environment.

In conclusion, events like this public consultation could be seen as a good way to inform and involvecitizens in the management of IAS.

Corsican Agency of Environment

France

Summary report of the INVALIS public dialogue event held in Corsica, France – 22/09/2020		
Partner organising the meeting :	Office de l'Environnement de la Corse – Corsican Environment Agency – PP04	
Partner members organising the meeting:	Marie-Cécile Andrei-Ruiz Gwenaelle Baldovini Sébastien Guelfucci	
Details of the meeting	Number of completed pre-consultation questionnaires:	6
	Number of registered participants:	6
	Number of completed evaluation questionnaires:	6
	Number of participants from each category of the target groups:	1
KPIs	Completed pre-consultation questionnaires received: 20 questionnaires Attendance: 30 participants Completed evaluation questionnaires received: 20 questionnaires	

Participants' interventions concerning theme 1: Controlling the spread of IAS – Example of eradication methods	During the first part of this day, we worked and discussed on theme 1 the control of the spread of invasive alien species. The National Botanical Conservatory of Corsica is currently working on different exotic species and on the means that they can implement at a local level without the use of chemicals. They workin particular on the different species of Acacia such as *Acacia dealbata* or *Acacia mearnsii*. They thus presented various methods depending on the size of the individuals to be treated. For individuals whose diameter is less than 10 centimetres, two methods are to be combined. The first consists of mowing / uprooting the plants three times a year, in spring, summer and winter. As acacias produce a lot of seeds, it is necessary to reduce the seed bank as much as possible. A prescribed burning is envisaged on the plots uprooted. A slow fire (more than 10 minutes) and very hot (temperature above 140 ° C) is veryeffective in destroying the seed bank stored in the surface part ofthe soil and promoting the germination of deeper seeds. For individuals over ten centimetres in diameter, the strapping method should be used. Initially, it is necessary to remove the bark of the trees on 90 percent of the trunk in order to considerably reduce the rise of sap without excessively stressing the trees which would then produce very many stump shoots. It is desirable to implement management actions before fruit formation to limit seed dissemination. Care should be taken to remove the entire root when uprooting and not to leave any fragments of the species in place after each intervention. After the seeds are removed, all parts of the plant can be stored in black plastic bags placed in the sun to activate decomposition.

	It is also possible to incinerate this green waste without removing the seeds. It was emphasized that these methods in no way involve the use of chemicals that could harm the environment. Many questions were then asked about the repeatability of the method and about the use of insect pests. It appears that the method can be repeated in the case of species presenting the same characteristics as acacias and if the terrain is suitable. Indeed, a prior botanical and faunistic study must be considered in the case of the use of a prescribed burn and the area must not be near dwellings or habitats at risk. The introduction of pests should be avoided because we do not know what will happen to these insects once their « work » is done.

Participants' interventions concerning theme 2: Before the spread – How to manage IAS before they spread?	The participants then asked what tools can be put in place to control the entry of new invasive species before it takes hold and spread. First of all, it appears important to make the entire population aware of the problematic invasive alien species. The Corsican Environment Office participates in particular in various European programs which work on this issue. The two programs ALIEM and INVALIS both aim to educate populations through various communication tools. For example, within the framework of ALIEM, an exhibition on invasive alien species was presented in museums in the partner regions of the project. Interventions in schools also made it possible to educate the youngest through games such as « snakes and ladders », « paper pots » and « Happy families ». It also made it possible to sensitize the populations through brochures and meetings as well as field trips to show that invasive species are present everywhere that they threaten biodiversity. Second, the regulatory tool can be a solution to this problem. Corsica has recently adopted a legislative tool allowing it to issue blacklists of introductions of invasive alien species whose introduction is prohibited. This new skill will ultimately reduce the risk of introducing species into the natural environment. On the other hand, this skill comes up against implementation difficulties, in particular because of the professionals who sell some of these species such as horticulturalists and animal shops.Finally, in the case of new introductions, it appears essential to have an effective early detection system. Indeed, as soon as a newspecies is detected on the territory, actions must be taken to eradicate it as quickly as possible before it develops. Many networks are already in place like ALIEN at sea level. The agents of the Office of the Environment also participate in a permanent watch during their day in the field and the sensitized populations do not hesitate to contact the authorities when they are faced

	with a species they do not know.
Participants' interventions concerning theme 3: INVALIS Activities - What are the problematics and achievements in the other partner countries of the program? Activity A1.1.	As the Corsican Environment Office participates in several European programs, in particular INVALIS, it seemed interestingto us to present the work carried out by the partner countries of the program. Indeed, through activity A.1.1. of the program, we compared the different policies in terms of management of invasive alien species. Overall, the policies undertaken by the partner countries are multifaceted. First of all, the majority of countries rely heavily on surveillance and early detection systems. These systems are linked to a policy of early eradication of detected species. Awareness raising is crucial in order to promote, encourage and motivate for

	efficient IAS management. Supporting states,businesses, local and regional organizations to engage the public into actions could contribute significantly to decreasing the threatof IAS. Concrete examples are needed to facilitate understandingof the impact of invasive alien species on the environment. The issue of conflicts of interest was also raised, in particular through the case of acacias. Indeed, many individuals are present on Corsican territory and are not perceived as invasive by the great majority of the population because of their beauty and the fact "that they have always been there". However, we now knowthe impact that these trees have on their close environment. Economic conflicts were also mentioned in the case of pet stores.Even if pet stores are not directly responsible for the appearanceof new exotic species in the environment, they are nevertheless the place where people buy its species. A blacklist of species prohibited from introduction will inevitably have consequences on their market. We also presented three tools present in document A.1.1. : **Waarnemingen.be** an early warning system **Pandora+ & Harmonia**+ risk assessment tools for pathogenic and parasitic micro-organisms and potentially invasive organisms **eDNA use for Early Detection & Eradication Monitoring.**
Participants' other interventions:	NONE

Evaluation of the meeting:	Because of this covid-19 pandemic, it was difficult to organize this meeting. We were limited to 10 people and only 6 were able to participate. In the end, the exchanges were constructive, the people present were very interested in the presentations that we made. It appeared that the participants expect a lot from the legislative side, in particular the environmental defence associations. Participants also expect clear management methods, they were particularly pleased to see the work done on the acacias. They were also informed of the future implementation of the decree on the management of IAS and believe that this is a step forward in the management of the problem. Overall the participants found that the organization was good despite the current context. The time devoted to each theme has been good. The quality of the interventions was judged to be very good. The participants believe that the meeting will lead to improvements in management policies.
Conclusions and policy advice:	In conclusion, the discussions were informative and interesting.

	On management experiences, the discussions focused mainly on repeatability and the results obtained on the eradication method used. It seems essential to remember that these methods have been tested on certain species. It is necessary to carry out management experiments on other species with other methods. Other species were treated by the Office of the Environment but not could be discussed during this day. This is particularly the case with *Eichhornia crassipes*, *Baccharis halimifolia* or *Senecio angulatus*. The first results of these experiments are positive. Acacia trees do not shed from their stump and individuals are weakened by cutting their bark. The second area of concern of the day was the transmission of information and public awareness. This is one of the most important parts. This is done through various communicationtools such as brochures, exhibitions, educational games or through meetings and presentations of documents, actions and results. The third part was devoted to one of the activities of INVALIS. This comparison allowed the participants to have new ideas in terms of management of invasive species in their territory, in particularin terms of early detection and rapid actions. In terms of policy advice, a combination of all the techniques mentioned was recommended. First of all, it is prevention that must be employed. It is by raising the awareness of allstakeholders that we can reduce the entry of IAS into the territoryat the source. Then we need an effective early detection method with the participation of citizen science and all experts using modern signalling tools such as smartphone applications. More traditional monitoring methods such as camera traps or eDNA monitoring are also possible. Finally, we need a quick, efficient response that does not cause environmental problems. The use of pests and chemicals should be avoided. New experiments must be launched to apply the best possible methods.

Zemgale Planning Region

Latvia

Public dialogue meeting "The range of invasive alien species in Latvia is becoming wider: what to do?" overview June 9, 2020, Zemgale planning region, webinar		
Event organizer:	Zemgale Planning Region	
Partner members organizing the meeting:	Nature Conservation Agency, University of Latvia, Latvian Fund for Nature, Ministry of Environmental Protection and Regional Development	
Details of the meeting	Number of questionnaires completed before the meeting:	23
	Number of registered participants:	27
	Number of completed evaluation questionnaires:	23
	Breakdown of participants by target group types:	
	- Representatives of the public	3
	Other target groups: local governments - 6 environmental NGOs - 2 regional agencies - 2 universities, research institutes - 3 nature protection institutions - 10 national public authority - 1	24
KPIs	Completed pre-consultation questionnaires received: 20 questionnaires Attendance: 30 participants Completed evaluation questionnaires received: 20 questionnaires	

Participants' activity on theme 1 (400 words):	Theme 1: Control of the spread of invasive alien species. First, the participants listened to the presentation of Santa Rutkovska, a senior expert at the Nature Conservation Agency (hereinafter - DAP), who described the invasive species, giving their definition, as well as pointing out that 10-15% of the alien species in the EU are invasive. They can pose risks to biodiversity as well as to the economy and affect social aspects. The presentation highlighted three components of invasive species management: prevention, control and containment. The information of distribution and dispersal
	of the most common invasive species was provided: Canadian goldenrod, Himalayan balsam, low juneberry, rugosa rose and Spanish slug. The participants discussed the different distribution routes of the species, the possibilities of overwintering for new “southern” species in connection with climate change. Public awareness is essential to control the spread of the species. That is why the DAP prepares various informative materials. One example is the informative material on the Spanish slug, where as a result of an information campaign, the DAP has already received 49 reports on its occurrence and widespread this year (2020). Regarding information on the distribution of invasive species, it was pointed out that the DAP, as an institution, does not have sufficient resources to regularly monitor their distribution areas. Mainly, the distribution of Sosnowsky’s hogweed is monitored in cooperation with local governments and the State Plant Protection Service. As for animal species, the situation shows that some of them have already stabilized in the environment - racoon dog, muskrat, but no rapid increase in their population has been observed. Participants also asked about bark beetles, which due to the warm winter have reproducing and destroying tree stands. The expert emphasized that the bark beetles found in Latvia are not an invasive species, but a local pest of the ecosystem. Representatives of municipalities commented that they lack the resources to control all species, even if plans to combat alien species are developed. This activity requires state financial support. Local authorities are mainly trying to limit the spread of Sosnowsky’s hogweed, but in some municipalities the problematic species are Canadian goldenrod and Himalayan Balsam. Plant cultivation permits are an important management tool that also ensures the collection of information on domestically grown and imported plants.
	Theme 2: Management of invasive alien species in ways that reduce socio- economic and environmental risks. First, the participants listened to the presentation of Brigita Laime, a researcher and professor at the Faculty of Biology, University of Latvia. The presentation focused on methods of controlling certain invasive plant species widespread in Latvia

Participants' activity on theme 2 (400 words):	(rugosa rose, Canadian goldenrod, Himalayan balsam), as well as on various examples from projects implemented in Latvia. Both the expert and the participants shared their experiences of the methods used. The expert emphasized that, although chemical methods are the most effective, they could be used in very limited areas to avoid harming the aquatic environment (after assessing all risks to both the environment and the population). Therefore, although the result can be achieved in a longer period of time, mechanical destruction of invasive plants should be preferred. Participants asked about the need to sow other plants at the site of the eradication of invasive species (excavation, uprooting, etc.). The suggestion was that each situation should be assessed individually. The available standard seed mixture, which is not representative for Latvia, should not be sown everywhere. At the end of the presentation, proposals were made for further actions on the management of invasive species, which were also discussed under Theme 3: The development planning documents of each municipality must include the objectives and appropriate actions on invasive plant species, their distribution and containment. It is desirable to include in the binding regulations norms on the restriction of invasive species, determining the liability of landowners. Municipalities need to be more active in the quality maintenance of their territories, as well as stimulate the land owners to do the same. It has been observed that the area of invasive plant areas in an economically active municipality is shrinking; Each landowner must be informed of the potential risks associated with invasive plant species and must control invasive species; It is important to determine the liability of landowners in regulatory enactments, which was emphasized by the representative of the Ministry of Environmental Protection and Regional Development (hereinafter - VARAM) (See below). The list of invasive plant species and the relevant regulations should be approved by the responsible national authorities. This proposal was specifically discussed during this meeting and also in connection with theme 3 of the meeting. The public needs to be aware of and understand the importance of preventive action to control invasive plant species. There is often confusion about the fact why the species are now being destroyed, because originally they were artificially planted for perceived benefits. For example, plantations of rugosa rose protected from dune erosion, shadbush was an additional food for animals, and hogweed was a fodder plant. However, its distribution was not controlled, and now the species is a threat to local habitats and ecosystems. This issue was emphasized both under Theme 1 and Theme 3. It is essential to choose effective methods, so various projects are supported where these methods are tested and best practices are evaluated. A big problem is with the control of invasive animal species. This is due to hunting laws and the licensing system, and hunting aquatic animals is particularly difficult.

Participants' activity on theme 3 (400 words):	Theme 3: Key aspects of effective control of invasive alien species. First of all, the participants listened to the presentation of Mara Melnbārde, a senior expert of the Nature Protection Department at VARAM, on public administration policy in the field of invasive species. The presentation highlighted both the risks of the spread of invasive species and the impact on biodiversity, the economy and human health. M. Melnbārde introduced the regulatory enactments of the European Union (hereinafter - the EU) and their implementation in the regulatory enactments of Latvia. There was a discussion on the list of invasive species, which is an important aspect of effective control of invasive alien species, as it provides a legal framework for further action. EU Regulation no. 1143/2014 and Nr.2019 / 1262 have approved 66 species that are binding on Latvia, 18 of them are currently found in Latvia, and 10 of them in the wild. The Latvian (national) list is being prepared on the basis of assessed environmental and socio-economic risks and potential losses. For example, banning the breeding of animals that may pose a threat to biodiversity in the wild also brings economic benefits. Some of the invasive plants are nectar plants or medicinal plants that can be used for food. Therefore, when compiling the list, individual assessments of the environmental, social and economic risks of each species must be made. Currently, only Sosnovsky's hogweed has been approved as an invasive species in the regulations of the Cabinet of Ministers of Latvia, but it is planned to amend these regulations. Participants pointed out that an updated list of invasive species approved by the government is an important factor in planning future actions at the local level. An essential element of the management system is the identification of competent authorities. In accordance with the informative report of the Cabinet of Ministers "On invasive alien species and division of competences" (27.08.2019), the DAP is designated as the coordinating institution responsible for the control of invasive animal species; the State Plant Protection Service (hereinafter - VAAD) is responsible for the control of invasive plant species. The report includes a number of further actions for the management of invasive species, including the development of legislation to implement European Union Regulation no. 1143/2014. M. Melnbārde emphasized that preventive measures are the cheapest option, while the limitation procedures are with a much higher cost. It is therefore essential to establish a monitoring system that includes data on both existing and new, potentially invasive animal and plant species. The importance of the monitoring system was also highlighted by other experts and participants. The responsibilities of local governments could include the development of containment and destruction plans, similar to the work being done to control hogweed. It is hoped that municipalities could be supported financially through various programs. However, local government participants indicated that their responsibilities in both the professional and financial spheres should be assessed before imposing responsibilities on local governments, especially in the context of regional reform. There is currently no such capacity.

	In order to stimulate discussion on public involvement in the identification and reporting of invasive species, the participants listened to a presentation by Ilze Priedniece, Project Manager of the Latvian Fund for Nature (hereinafter - LDF), on the public contribution to science and monitoring, using: www.dabasdati.lv portal. It was emphasized that the involvement of the population is one of the most popular methods of data collection, which also contributes to the development of different technologies, including the creation of practical mobile applications. The portal www.dabasdati.lv is one of the most popular portals for reporting observations of wild species in nature, linking to a specific place. Some of the seminar participants also confirmed that they are users of this portal. In connection with the creation of the European Bird Atlas, an application was developed that gave a great impulse to public involvement activities, and the number of active users also increased: around 900 / year.
	The data of the portal database are used in various studies, incl. in the development of nature protection plans, especially in the identification of protected species and sites of invasive species, as well as in expert opinions. The information included in the database also allows experts to better prepare for planned field studies. Participants asked about the reliability of the submitted data and the possibility to use them in the work of experts. Representatives of both LDF and the Institute for Environmental Solutions confirmed the positive experience in using the information provided by dabasdati.lv, as photos confirming the observed species are also submitted. In connection with dabasdati.lv, social media accounts have also been created, which promote the portal and mobile applications, thus further attracting public attention. As an example of good practice, I. Priecniece mentioned the species determiners. They help to identify and learn more about species that are valuable to biodiversity. Such determiners could also be developed for invasive species. An example of DAP information material on the recognition of the Spanish slug was also mentioned. Increased public participation is also ensured through different projects. One of the good examples is the Latvian-Lithuanian cross-border Programme cooperation project: “Joint resistance to bioinvasions for sustainable agriculture and management of natural resources”/ “TEAMWORK”, which resulted in the registration of observations of invasive plant and animal species in Latvia. The discussion suggested that the public should continue to be encouraged to report on the distribution of invasive species using dabasdati.lv or any other application. There are already such opportunities, but as policy development or monitoring requires up- to-date data, this tool needs to be promoted and actively used.

Evaluation of the seminar (200 words):	Despite the remote approach and technical difficulties (in the morning of 09.06.2020 in Riga there was a wide power outage), the participants of the seminar said that the seminar can be assessed as very valuable and successful. It was emphasized that it would be important to continue implementing all good practices. Assessment given in the questionnaires:: on the quality of the organization of the seminar: about half of the respondents (11 out of 23) rated the seminar as very good, half as good; on the time interval for each topic: slightly more than half of the respondents (13 out of 23) assessed that the time allocated to each of the topics was completely sufficient (maximum rating), slightly less than half gave the assessment that the time was sufficient. Only one respondent noted that time was not enough; on the quality of discussions: almost half of the respondents rated the discussions as good, ~ 30% as very good. However, 20% of respondents rated the discussions as moderate. The moderate rating is possibly related to the online format, in which not all participants feel comfortable actively participating. Others, on the other hand, appreciated the saved time that would otherwise be required to travel to the seminar; assessment relevance and effectiveness of the meeting: 60% assessed that they fully agree and 40% almost completely agree that the meeting was generally relevant and effective. Only one respondent was unsure whether the meeting would give any results.
Conclusions and recommendation s for policy	The seminar provided the most up-to-date information on the distribution of invasive species in Latvia, on the most typical distribution routes and management methods. Particular attention must be paid to methods of restricting the spread of invasive species - depending on the type of distribution of the species (seeds, roots - plants; movement, reproduction - animals). The invasive alien species management costs also vary between species, their distribution, density, availability and other parameters. Management roles - it is important to discuss the role of municipalities in controlling invasive species, as municipalities have the closest contact with property owners or managers. On the one hand, there is a suggestion that local governments could play a more active role, on the other hand, it requires knowledge and resources that are currently unavailable to local governments. Municipalities should be supported with knowledge regarding the choice of methods for controlling invasive species during the implementation of control measures, in order to avoid mistakes that can only cause costs but no effect. There is currently a risk of a large institutional fragmentation in the management of invasive species as several institutions are responsible for different issues and responsibilities so it will be important to ensure that the functions do not overlap. The most active discussions were on the current list of invasive species - which species will be included there and when it could be adopted. It would be important to assess both environmental and socio-economic risks.

development (900 words):	There is a lack of information on socio-economic risk assessments in the situation in Latvia. It would be important to assess the impact on tourism / recreation; effects on agriculture (such as damage caused by the Spanish slug) or human health (burns from contact with Sosnowsky's hogweed). The value of real estate is lower for overgrown and neglected areas, and can affect the value of adjacent areas. It would be necessary to develop easy-to-understand and attractive information material on those invasive species that are more difficult to identify and distinguish. The need to develop a specific application for registration or reporting of invasive species should be determined by national policy makers, i.e. VARAM. On the other hand, the proposal is to use existing portals (such as dabasdati.lv) more efficiently. Citizens need to be made aware of the importance of preventive action to control invasive plant species. Often people are not aware of the consequences of growing different plants, such as ornamental plants. It is important not only to inform the public, but also to actively involve the relevant target groups in the fight against invasive species - in order to make progress there is a need to work actively with the landowners.