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**GUIDANCE ON COMMUNICATION ON IAS**  
**-SECOND DRAFT-**

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*Sections marked with an \* have been edited by the Authors of the second draft to incorporate inputs from the Standing Committee, Group of Experts on IAS, and Secretariat of the Bern Convention.*

*The remaining text has been revised to improve its structure, fluency, and readability and ensure language consistency.*

## INTRODUCTION

*“Communication is not simply the transmission of messages;  
rather, it is the mutual exchange of understanding and shared meaning  
leading to cooperation and better practices” (IOSH, 2015)*

Communicating environmental issues - or social issues in general - is a task that involves many problematic and risky aspects. This is due to several factors, which influence the success of communication campaigns, and which are not only related to the behaviour or sensitivity of the target audience.

Apart from dissemination and communication campaigns designed by private entities or non-governmental organizations, communication on environmental issues is very often the prerogative of public administrations and related bodies. Unfortunately, nowadays it is very common to come across inefficient communication campaigns, often designed by public administrations. The inefficiency of communication on environmental issues is mainly due to two factors: i) those who promote the communication initiative are not always up to date on currently effective marketing models, and ii) often cannot identify a winning communication message because they tend to communicate details that are too technical for the target audience.

In relation to the first factor, communication (on environmental issues or otherwise) is often done as it was 20 years ago, using very expensive and now less effective means and media (Bodensteiner, 1995). The general public, which - up until the 1990s - assimilated standardized messages and used its critical conscience to adapt the messages of a communication campaign to its needs, no longer exists. It is worth remembering that people's expectations from a communication or awareness campaign evolved considerably thanks to the internet. Internet guarantees and requires high-quality content tailored to the user's tastes and needs and offers a good degree of involvement to its user. Hence, today a communication strategy should be planned differently depending on the target audience (profiled groups or segments, see section 2), also because the changes in behaviour or the actions a communication campaign wants to induce are different for each target group.

Furthermore, communication on environmental issues, especially when this goes beyond spreading awareness of the problem and invites the target audience to action, sometimes suffers the disadvantage of being designed by scientists who are only experts in the problem itself. This factor, which at first glance may seem of little importance, if not positive, has often proven to be an obstacle to effective communication. Scientists will surely know the subject exhaustively and in all its facets, and precisely by virtue of this knowledge they will tend to infill the public with numerous notions that are not immediately necessary to introduce the subject, dispersing the attention of the target and making the topic difficult to understand. Communication on Invasive Alien Species (IAS) is not exempt from these pitfalls and is also subject to several additional potential difficulties: communication efforts inevitably clash with a whole segment of the public that believes nature must take its course and that, even if species are introduced outside their native range, they must be safeguarded. This attitude is driven by an underlying ignorance of the negative repercussions of IAS at the level of the local ecosystem.

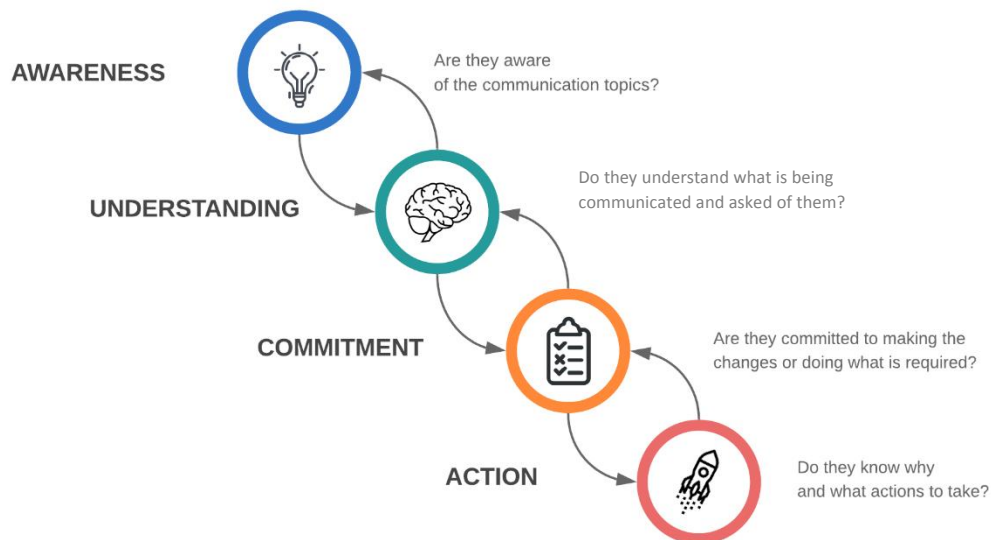
In this document, guidelines will be provided for the effective planning and implementation of communication campaigns targeting the “general” population or a specialised public, with special attention to the communication of issues related to IAS. Annex I provides a compilation of examples of communication on IAS. It is however important to remember that it is always worthwhile turning to communication and content creation professionals as valuable allies in communication campaigns.

## 1. THE COMMUNICATION PLAN

The communication plan analyses the use of different media and the effectiveness of the communication process and indicates the campaign's objectives, timeframe of action, budget, and result indicators.

Assessing the efficiency of communication in all the phases of a communication campaign is critical to delivering the desired objectives. Analysing many of the calls for tenders for the design and implementation of communication campaigns, it is evident that this principle is largely undervalued: the communication expert is often asked to present a media and usage plan of the means of communication in the elaboration phase of the commercial offer, while this type of planning should be based on a research of the level of awareness of the topic of the communication campaign of the target audience.

A preliminary evaluation of the target audience's awareness of the topic serves both as a baseline to evaluate the impact of the communication activities, and as a reference to effectively plan the subsequent steps of the communication plan. This would improve the result of the communication campaign while allowing the use of available financial resources - very often of modest size - for more targeted actions for the dissemination of the message.



*Fig. 1. Communication phases checklists – based on Beane (2022)*

The flow chart in Figure 1 effectively describes the four main stages of communication, which must work in both directions and should be monitored to evaluate a communication campaign's efficacy:

1. **AWARENESS:** be aware of the existence of the problem and its root causes
2. **UNDERSTANDING:** understand the problem and what is required of the target group
3. **COMMITMENT:** commit to reduce the problem once it is recognised as an issue that concerns the whole community;
4. **ACTION:** act through the given behavioural guidelines

The continuous monitoring of the target audience's reaction and an adaptive communication strategy can ensure to reach the communication campaign's final objective.

## 2. COMMUNICATION OBJECTIVES

The pivot point of effective communication is finding clear and understandable objectives based on which the communication plan shall be designed, and adequate communication tools identified. In the first instance, it is important to highlight that **communication is not the final objective** but the means to reach the final objective. The final objective could be raising awareness, motivating to action, engaging target groups to debate, and helping spread the message. Especially when the campaign is part of a bigger project or is designed by a public administration or organization, it is not unusual that communication is designed as the final objective. This is a common mistake.

When dealing with IAS, the final objective of communication, apart from raising the awareness of the target audience, is both 1) to **encourage a voluntary change of habits** in order to prevent IAS introductions and avoid the need for drastic measures, and 2) to explain why drastic measures are needed if preventive measures fail. It is important to remember also that **awareness is not necessarily a synonym for motivation**. Once the target audience is aware of the issue, there is still the motivation step to go through. Communication campaigns tend to go beyond the simple act of *information sharing*, which is the preparatory step to ask the target audience to give feedback and eventually embrace the values of the campaign. A positive outcome of communication campaigns is when the target group itself becomes a means of spreading the campaign message.

Objectives of a communication campaign must be realistic, easy to understand, to monitor and verify, and in line with the available budget. Recalling an acronym used since the 1980s for business models (Doran, 1981), a communication campaign must have **S.M.A.R.T.** objectives:

1. **Specific** and designed in a clear, not ambiguous way, i.e., indicating only one unmistakable action/information to be addressed or that the target audience is asked to adopt, tailored both to the specific goals we are pursuing and to the audience we are targeting.
2. **Measurable**, to allow monitoring.
3. **Achievable** in the context of the communication campaign. It is often easy to underestimate the effort or the feasibility of a communication objective.
4. **Relevant**, to contribute to the achievement of the overall communication goal.
5. **Time-related**, it should include in its formulation when the goal is expected to be achieved.

Of course, not all the communication objectives have to fulfil all five SMART factors but keeping this in mind can help design a more efficient communication campaign (Table 1).

Ambiguous objective	SMART objective	Behavioural factors	Fulfilment indicators
Raise awareness and raise the perception of the risk	By December 31st, 2021, the main concepts related to the IAS issue will be disseminated through a social network page, reaching at least 10,000 new followers	Awareness	Number of followers reached and number of interactions with the pages' contents
Cooperate with organizations and environmental activists	By December 31st, 2021, at least 24 meetings with environmental organizations or movements will be held to discuss best practices to prevent the spread and impact of IAS	Understanding	% of meeting participants increasing their understanding of practices to prevent the spread and impact of IAS
Motivate a change of habits and feelings towards the issue	Within June 30th, 2021, at least 500 pet sellers will adopt a voluntary code of conduct on IAS	Commitment	% of pet sellers adopting the code of conduct
Give practical and easy-to-understand guidelines of behaviour to follow	By 31st December 2021, 100 gardeners abstain from purchasing species that are known to be IAS	Action	% of decrease in purchases of IAS

Table 1. Examples of specific SMART communication objectives

### 3. TARGET AUDIENCE

Deciding to whom the communication strategy is addressed is a key phase in the communication design process. Defining the target audience is critical to the effectiveness of the communication campaign. The second and subsequent step is *getting to know* the target audience, learning what it is fond of and understanding its needs.

**The target audience must be identified depending on the final objective of the communication campaign.** If the final objective is to raise the awareness of the public about the IAS issue in general, an investment in reaching the maximum number of people will be worthwhile. This will lead to a general widely spread awareness about the problem and could lead to a spontaneous trend towards increased interest in the topic. If the main aim is to raise awareness of the consequences of the Eastern grey squirrel (*Sciurus carolinensis*) or of the water hyacinth (*Pontaderia crassipes*) invasion, it may be better to focus on people living nearby natural parks or somehow involved with the ornamental plant world (park visitors and traders, respectively). In this case, communication must be more specific on the issue and must contain more technical specifications about how to prevent the problem itself, how to manage it and how to react to its impacts if it is possible.

#### 3.1 Whom should we talk to?

Nowadays citizens are more prone to search and receive information about environmental topics, and, if adequately motivated, more willing to assess life-changing options and make a voluntary change of habits in order to improve their health and the environmental condition. In this context, an effective information and communication campaign about IAS can be critical for preventing new introductions or the spread and impact of established IAS. Despite in recent years regulatory efforts have been exceptional (e.g., EU Regulation 1143/2014), conscious behaviour by the citizens remains the most effective weapon to counter the problem.

As mentioned before, the general public is not, as such, a critical target anymore since citizens are now used to having targeted and tailored messages from marketing and communication campaigns. The general public is composed of several specific subgroups, each of which needs to be activated with targeted messages. Segments of the general public can be profiled according to several criteria, from behavioural factors (e.g., hunters, travelers, etc.) to demographic factors (age, cultural level) to those linked to the interest and personal involvement in the environment (environmental associations, civic movements). The population subgroups identified as the **target audience** are called “**segments**”.

Each segment must be composed of a distinct and (relatively) homogeneous subgroup of the population, with capabilities of decision making, which shares some common characteristics and which we expect to behave in a similar way. Different segments of the target audiences will hardly visit the same websites or use the same media. Each segment should be designed thinking about how its components will respond to a media campaign, what are their responses to marketing strategies, and how they are likely or not to follow a call to action. The media used during the campaign and the activities conducted should depend on these parameters. A variety of software available can support identifying the types of media the identified target audience prefers for the exchange of information content.

It is important to stress that excellent content not tailored to a specific audience will not be as effective in the call to action. As it is true that historically the introduction pathways of IAS are closely linked to the behaviour of the citizens, it is also true that the citizens with their own behaviour have a great power to modify, with their choices, other categories of targets involved in the process, such as those linked for example to trade.

This is why associating specific communication objectives to specific segments is one of the most important actions during communication planning and should be carried out by communication professionals in synergy with researchers and experts on IAS.

There are several identifiable groups, such as industrial and trade operators, environmentalist associations or movements, hobbyists, operators of protected areas and botanical/zoological gardens,

but also demographic (e.g., children, teenagers, and adults), politics (e.g., environmentalists), socio-economic (e.g., low- medium- high-income) groups within a segment. A special mention goes to the school, which should and could be a very important vector of awareness for the new generations.

Table 2 provides some potential target audiences for a communication campaign on IAS.

Segment group	Decision maker	Influencer	Connection	Main barriers	Media examples
Pet and plant retailers	Pet and plant retailers	Customers	Pet and plant retailers' associations	Higher-income if they sell IAS	Direct contact; Specialised fairs and forums; social networks
Pet owners	Pet owners	Mass media and fashion tendencies	Pet and plant retailers' associations	Pets as a status symbol	Social networks
Ex situ facilities (e.g., zoos, botanic gardens, etc.)	Animal and plant curators	Visitors	EAZA; WAZA; BGCI; other networks	Lack of funds for a correct management of IAS	Specialised literature; conferences; social networks
Fishermen and Hunters	Licensing and regulatory bodies	Shop owners; fishing guides; researchers; Environmental associations; Citizens	Fishing and gaming associations	Cultural traditions; habits	Specialised magazines and forums; social networks
Hikers	Hikers; hikers' associations' leaders	Hiker associations; Travel agencies	Park authorities; environmental associations	Indifference; empathy for good-looking species	Warning signs in parks visitor centres and at trails start
Boaters	Boaters	Marinas regulatory bodies	Boater associations; travel agencies	Lack of knowledge; indifference; extra work	Warning signs in marinas and docks
Travelers	Travelers	VIP, other travelers; Eco-tourism travel agencies	Environmental associations; travel agencies	Lack of knowledge; indifference; unhappiness that they cannot bring certain souvenirs/foods	Specialised magazines and forums; social networks
School children	Teachers; parents	Peers; Teachers; Parents	Educational groups	Lack of knowledge; adult indifference/interference	Regular lecture; classroom activities; web; social network
Naval and airborne carriers	Trade regulatory bodies	Customers	Trade regulatory bodies; WTO	Increased costs due to IAS management	Directives; guidelines; warning signs at hubs
Citizens	Citizens	Scientists; Media	Scientific bodies; Environmental associations	Lack of knowledge; indifference	Web; social media; virtual platforms

*Table 2 - Examples of target segments for communication on IAS and their characteristics. The list is not exhaustive. Abbreviations: WAZA (World Association of Zoos and Aquariums) EAZA (European Association of Zoos and Aquaria), BGCI (Botanic Garden Conservation International)*

### 3.2 How to define the target audience

The correct identification of the target audience usually follows different steps. The goal is to identify an effective, measurable, and homogeneous population segment. The results of this analysis

should then be combined with the demographic of the segment(s) identified, which will help identify language and effective means of communication to achieve the final objective of the communication campaign.

Step 1: what are the campaign objectives?

Correctly identifying the target audience of the communication campaign means identifying the part of the population that, made aware of the issue the communication campaign aims to address, can be of greater impact and benefit to the success of the campaign objectives. It should also be remembered that, depending on the objectives of the campaign, choosing a limited audience could have more beneficial effects on the objectives of the campaign than broadening the audience "open field".

Step 2: is the audience made of decision makers?

The audience segment for a communication campaign must include "decision makers" in relation to the topic the campaign aims to communicate. Decision makers have the power to make a choice and can therefore influence the achievement of the communication objectives.

Step 3: what does the target audience care about?

Once the audience segment has been identified, it is important to set the communication campaign to meet the needs or recall important topics for the selected target. The way information is disclosed and how the call to action is designed is just as important as the subject of communication itself. Identifying topics that are important to the target audience will create a more direct and positive communication channel. The key messages (see section 4) will have to be part of the sphere of their interests and adapt to the means of communication chosen. The way key messages are conveyed will then need to be aligned with how our audience is used to receiving information or call to action.

Step 4: who does the target audience follow?

Another interesting topic that should be considered immediately after identifying the target audience is whether the target audience identified follows a recognizable movement or figure. In other words, an influencer. The influencers as intended in this document are not necessarily prominent social media people. They can be scientific advisers, but also prominent people of a restricted community or activist group. An influencer could also be a person very close to the target audience (as part of their working or family nucleus) who already is aware of the IAS issue and behaves as the target audience is expected to behave as a result of the communication campaign. Ensuring the collaboration of these influencers could make a difference in how the target audience will respond to the communication campaign.

It should in any case be borne in mind that the type of message a communication campaign on IAS should convey is in itself very positive and aimed at safeguarding biodiversity: positively keeping the message will help recruit leading figures who will most willingly accept to collaborate in the dissemination of the topic objective of the communication campaign.

Step 5: is the project team directly or indirectly connected with the target audience?

Another aspect of great interest related to the identified target audience, which can help to refine the communication is the presence or absence of direct connections of the project team with the target audience. Direct connections can be personal connections or related to interests and habits. For example, there might be direct connections with national associations of professionals or hobbyists.

Step 6: are there any barriers to be aware of?

Especially in the case of a call to action, it is important to be aware of any barriers or impediments that a communication campaign might encounter. Identifying potential barriers will allow the project team to overcome them to eventually enable the target audience to adopt the behaviours the campaign is asking for.

Step 7: what are the best means of communication for the target audience?



Once the target audience is defined, the project team has to proceed to the analysis of the most effective means of communication to achieve the best possible result (Table 3).

The choice of means of communication is obviously also influenced by the budget available and the type of information to be conveyed. Even with a limited allocated budget, it is still possible to maximize the results, according to the principle that it is not the "quantity" that counts, but the pervasiveness of the selected means of communication. For instance, printing one million flyers for kids will be less and less efficient in the future than, for example, forging a collaboration with a YouTube channel or a social media manager for dissemination on social networks.

Certain software (e.g., web traffic analysis systems, keywords search systems) can help choose the best means of communication for the target audience. One of the most effective tools to verify the public's search for the topic of the communication campaign is *Google Suggest*. This free tool is a feature of the Google search engine that, as users start typing in the search box, automatically suggests what other users have looked for in relation to what the user types. When this function is used for statistical reasons, it is better to use the service by disconnecting accounts or even better by using an "incognito" navigation feature, so that the research is not impaired by previous research conducted with the laptop or account in use.

Step 1: objective	<i>Within the next six months, at least 500 pet sellers will adopt a voluntary code of conduct on Invasive Alien Species</i>
Step 2: decision-makers	Segment 1: Pet retailers
Step 3: what audience cares about	Build a relationship of trust with their buyers
Step 4: audiences' influencers	Buyers (Segment 2)
Step 5: connections	Pet retailers' associations
Step 6: barriers	Segment 1 could not be prone to adhere to the code of conduct if not motivated by an aware customers behaviour
Step 7: means of communication	<ol style="list-style-type: none"> <li>1. Communication via direct contact (email/mail/phone) and through pet retailers associations (e.g., fairs)</li> <li>2. Communication via specialised online forums</li> <li>3. Campaign website, addressed to both retailers and customers</li> <li>4. Communication via social networks</li> </ol>

*Table 3. A target audience analysis example*

In the scenario presented in the table above, to adequately motivate pet traders it will also be necessary to act on their direct influencers, their customers. Therefore, it will be necessary to identify a second segment of the population as a target audience. A possible strategy for communication, in this case, could be to give traders the tools to share with their customers the possibility to adhere to the codes of conduct, effectively transforming the trader into an ally in sharing the problem of Invasive Alien Species with a wider audience. Moreover, in this specific case, a communication campaign would benefit from ensuring customers are aware of the issues surrounding "exotic pets", like welfare issues, zoonotic disease risks, risks to native populations, and IAS potential. In this scenario, the objectives of the campaign would be to spread awareness of the problem and publicly reward merchants adhering to the codes of conduct.

A basic media plan could therefore contain:

1. Communication campaign website aimed at merchants and their customers;
2. Summary material traders could use as a tool for disseminating to their customers;
3. Dedicated social network page, linked to the website and connected to social media pages of merchant associations;
4. Emotional video spot on the problem of IAS with reference to pets and how retailers can make a difference;
5. Gadgets and "certificates" of membership for merchants to be displayed in sales outlets.

## 4. COMMUNICATION TOOLBOX

This section illustrates the aspects that need to be taken into consideration when designing a communication campaign. The aspects examined relate to language, audience interaction, and engagement as well as to the chosen media, and are all greatly influenced by the preexisting or lack of knowledge of the target audience about IAS.

### 4.1 Communication style and content

Often communication campaigns on IAS are part of larger scientific projects or programs led by scientists and researchers. In this case, it is paramount to avoid that the focus of the campaign is messages on technical topics which could be too difficult to grasp for the target audience. In this sense, relying on the synergies between an experienced communication professional and scientists and researchers could ensure tailoring the message of the campaign to the target audience and help highlight the project topics in a form understandable by a non-technical audience.

It is also very important to combine scientific knowledge and expertise with first-hand experience in the field, especially when addressing the communication effort from technicians or scientists. Encouraging them to share their opinion and experience will lead to better communication results and the target audience will be more prone to share the new information if they have been involved in a constructive two-directional discussion (Tricarico, 2017).

While it is generally true that, due mainly to social media, the average attention span of the generic public is shrinking, it is also true that attention is task-dependent, and individuals can focus on one task for a longer amount of time **if they feel this task as important**.

Communication contents must be tailored to the target audience (and to its segment(s)) and be **highly engaging**. An approach to engaging the audience on a difficult topic like IAS is to use examples from everyday life or use arguments that are supposed to be part of the audience's experience. For example, a campaign about invasive plant species may leverage annoying bike tire punctures caused by *Tribulus terrestris*. A further example includes the reduced outdoor activity in some areas due to the massive spread of the Asian Tiger Mosquito (Worobey et al., 2013). Additionally, some recent articles compared the spreading and consequences of IAS with those of the Covid-19 pandemic (the latter being a well-known topic to everyone in the world; Nuñez et al., 2020). Further, each message disseminated must be brief and focused but must also contain all the necessary information for the final target audience to understand what the communication campaign is expecting from them.

Therefore, an effective strategy – especially in social media – could follow three steps:

1. Address the key message with brief and effective content (short video, summoning logo, etc.)
2. Make the target audience aware of the importance of the subject
3. Prepare different levels of in-depth analysis to guide the audience through a process of understanding and awareness.

#### 4.1.1 Raising awareness

The topic of IAS is a particularly difficult one to communicate since the public has a poor understanding of the role of Invasive Alien Species in ecosystems, and in some cases, may even see them positively. Thus, creating awareness on IAS is comparatively more difficult than communicating problems like deforestation or pollution, which are unanimously perceived as negative. When informed about biological invasions, people tend to underestimate the problem. It is important the communication plan helps the target audience to fully understand the issue and the related short and long-term effects and encourages them to adopt appropriate behaviours.

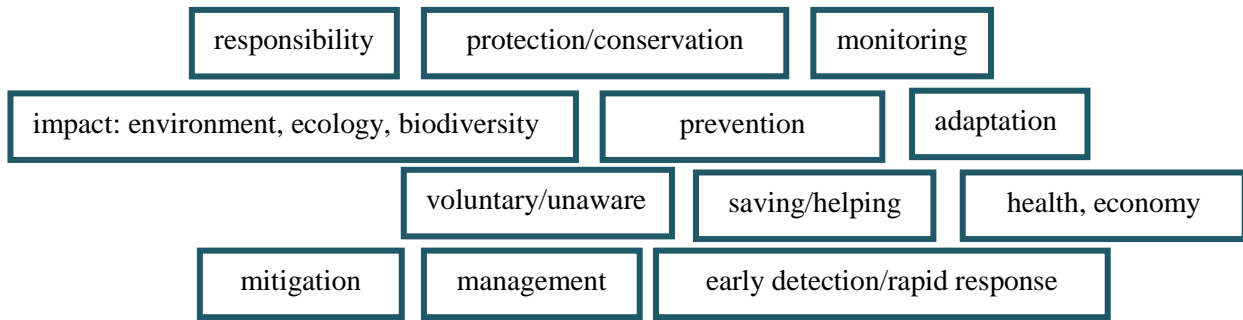
To raise awareness, it is important to engage the target audience by developing two-way interactive communication instead of cold, more formal, one-way communication. This means that the

target audience is effectively included in the process of communication, participating in the activities foreseen by the communication plan, in order to acknowledge the problem, change habits and behaviours and spread the message to their peers.

#### 4.1.2 Keywords

Especially when communicating through new media, defining project keywords provides efficient guidelines for the development of the communication campaign.

Some examples of keywords of a communication campaign on IAS:

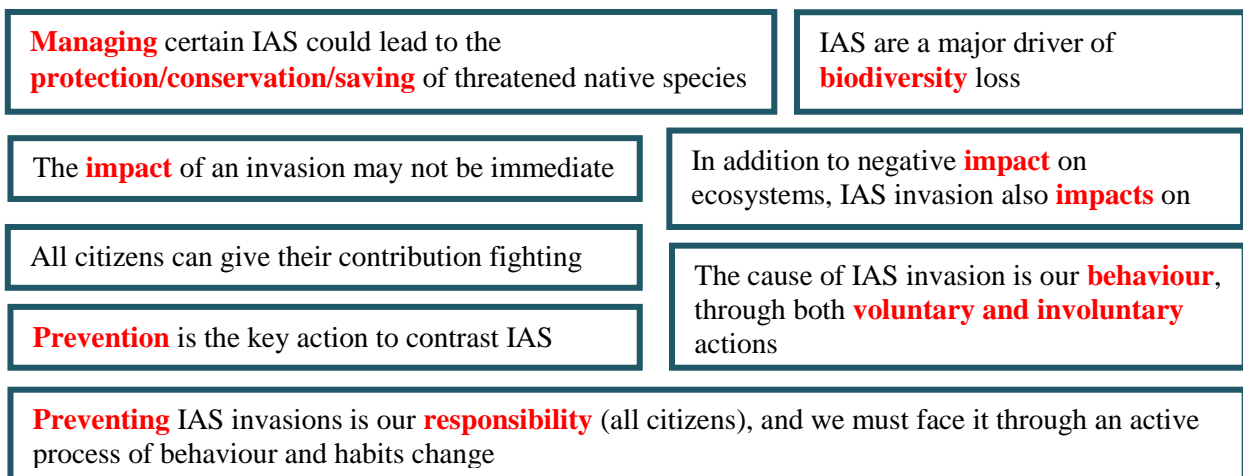


#### 4.1.3 Key messages

Key messages are structure statements used during a communication campaign to address the main topics of each communication objective. The questions key messages should answer are: what does the communication campaign want to communicate? What is the final purpose of the campaign?

Key messages must both meet the campaign's communication objectives and the communication needs of the target audience. Key messages must be easily understandable by the target audience, concise, simple, precise in their contents, scientifically solid and reliable. It is recommended that a communication campaign focuses on no more than two or three key messages, to avoid overloading the audience. Key messages should be formulated based on the campaign keywords (the latter should be used for social media hashtags). Key messages should preferably address those topics which generally cause confusion and misunderstandings in the target audience (i.e., there is only a small percentage of alien species which are recognized as invasive).

Some examples of key messages of a communication campaign on IAS (in red the keywords):



#### 4.1.4 Language

Even within the scientific community, there is not always an adequate consistency of technical terms used and basic definitions. Maintaining a uniform, scientifically correct, although easy to understand, language will give the target audience certain references on the topic (Tricarico, 2017).

## 4.2 Media

In last years, the Internet is without doubt the medium that has played a major role in environmental communication. The Web makes it possible to reach a wide range of audiences at lower costs, compared to traditional media, but this is not its only advantage. Environmental communication can benefit from the Web “green social tissue”, made of blogs, focus group, forums, social networks, many of which are born spontaneously and are interrelated. This has become even more evident during the Covid-19 pandemic.

Given the nature of the Web and the interactive possibilities it provides, an online communication campaign will benefit from the two-directional discussion, engaging the audience to participate actively and to intervene directly in the solution of the problem.

A strategic pivot for every social and commercial marketing campaign is that the Web has made it possible to highlight the meaningful connections that now allow us to talk about the environmental communication system and not just individual applications on the topic.

### 4.2.1 Social Media

Social media remain one of the cheapest and strongest means to reach the target audience. As for the web in general, it is important to keep in mind that social media communication is a two-directional tool. While communicating through social media we are expected to **share the information with the target audience and maintain constant contact** with them, exchange stories and experiences, ask questions and provide advice inspire thoughts, and call to action.

This is particularly true with multimedia-based social networks with large audiences, such as **Facebook, Instagram, and YouTube**. When a campaign is run through social media, the project team should **establish a relationship** with the target audience in order to keep them curious and engage them in a meaningful way.

There are some factors to be considered when approaching a new social media channel, in order to manage it effectively and professionally:

1. Sharing contents is **only the first step** toward creating a solid community. We are supposed to share only meaningful contents, clear in their meanings and centered on the communication topic, using always the same style and encouraging comments and feedback;
2. The creation and management of a social media channel require having in mind clearly **what our objectives and our strategy are**. Are we trying to spread awareness? Are we planning a call-to-action?;
3. Our communication style must be **always the same**. The language type must be less formal if our audience is based on a larger generic number of followers;
4. Since issues related to the environment move our gut feelings, the project team must expect some **negative reaction** to the campaign. Negative feedback must be managed with calm language and clear explanations, encouraging followers to deepen the topic together and to avoid sterile negative instances.
5. Social media channels used for the campaign must be updated with an **appropriate frequency**. The project team should work following an editorial plan containing what kind of information it wants to share (news, a weekly feature dedicated to a species, etc.) and the publishing schedule. The schedule must be plausible and feasible, according to the available

time and budget. It is better to maintain the frequency between new content regular, to give the audience a fixed appointment.

6. People's attention is caught first by images rather than a title when scrolling a Web/Social Network content. Especially on social media, it is advisable to use **graphics, illustrations, and photographs to summarize the content of the news or focus**. Contents must be designed to follow a **unique graphics line**, which will be immediately recognizable by followers (Ennis, 2018).
7. It is important to carefully choose **keywords, hashtags, and categories** for social media posts. It is common to invent a new hashtag for the campaign, which must be followed by a series of hashtags that will help better define the target audience. Studying hashtags and tags in a social media post is not of secondary importance.
8. It is important to have a **constant and productive relationship with the target audience**. If social media are the center of a campaign's media strategy, it is better to consider hiring a **professional social media manager** who can give immediate and real-time feedback to the followers.
9. **Monitoring** the followers' reactions to the campaign's posts is as important as writing new content. Statistics help refine communication efforts to address the target audience's needs and interests.

## 5. ISSUES TO CONSIDER WHEN COMMUNICATING ON IAS

There are several problems related to the communication on IAS, some of which are related to the perception that the public has of the impacts of species introductions.

For example:

1. the IAS issue is a complex topic to communicate and be fully understood by citizens;
2. it is not always easy to address the issue of IAS communication using positive words or attitude;
3. communication on IAS requires different levels of information depth depending on the target audience;
4. since the full topic is very hard to understand for common citizens, it is better to focus on one aspect of the issue;
5. often the audience is misled in its knowledge of the issue by information coming from unreliable sources (especially on social networks);
6. speaking of IAS, especially of eradication of vertebrates, can cause undesirable reactions from the audience, (eradication of plants, invertebrates, and recognized pests is usually easier to communicate);
7. communication campaigns on IAS may be bypassed when technical documents (e.g., project descriptions) are made available to the public in compliance with transparency standards, especially in publicly funded projects. In such cases, technical words like "eradication", "culling", "sterilisation", "Juda goats" may flow in the media without a proper elaboration by experts on the concepts behind these techniques creating an opposition of the general public and in turn hampering the efforts of any well-developed communication campaign. IAS are living organisms, therefore for certain groups of stakeholders highlighting the need to manage them humanely is important (especially for animals);
8. the budget available for the campaign is often inadequate compared to the communication needs;

9. the scope and consequences of an invasion are not always easy to forecast and assess. Communication must deal with this factor and the possible mistrust of the target audience due to the lack of certain data or information. The best way to face this issue is transparent communication and seeking a dialogue with the target audience, managing the discussion from a scientific point of view (Tricarico, 2017).

Despite the above-mentioned issues, there are advantages to communication on Invasive Alien Species.

One advantage is that communication on IAS relies on solid scientific evidence. Another advantage is that environmental communication nowadays captures the interest of the citizens, especially in the demographic segment of the young and the very young. It is precisely this segment of the population that is mostly exposed to information and communication content thanks to online media. The positive energy and the desire of the youths to put themselves on the line can be a turning point for the management of IAS, above all because in this case the population can make a difference through their daily choices.

Although the impacts of invasions are sometimes difficult to understand because they can only be detected in the long term, the great body of knowledge proving that they can have an enormous impact on the environment, human health and the economy can be a good leverage to raise awareness among those less attentive to environmental problems.

### ***5.1 Further considerations on online communication***

Online communication has become more and more common during the COVID-19 pandemic in early 2020. A positive aspect of the generalized lockdowns all over the world during this period is that people have become aware of and used to new online communication tools and platforms. Several scientific institutions around the world have been using these tools to keep people engaged in various aspects of nature conservation through virtual seminars, courses, and conferences.

Together with web-based communication (e.g., websites, blogs, etc.) and social media, tools for virtual conferences and lectures will be a further important medium to communicate the IAS issue. Opportunities are manifold and include:

1. hundreds of people can be involved in a virtual space, which makes this medium logistically advantageous and cheap;
2. people can follow events from home, which may stimulate participation;
3. online questionnaires represent easy and immediate ways to obtain feedback from the audience.

Challenges include:

1. people can participate in online events on a voluntary basis, so people that are not interested, underestimate or are against the problem of IAS (the most important target for a communication campaign) may be difficult to reach;
2. the ease with which virtual events can be organised may result in an overload of events and consequently in an overload of information that may discourage or even bother the potential public.

## **6. GUIDING PRINCIPLES FOR COMMUNICATING ON IAS**

1. Ensure that communication on IAS is based on a communication plan that precisely defines the target audience, the initial level of awareness of the topic by the audience, the communication objectives and that monitors the effects of the communication strategy.
2. Ensure a communication plan is based on S.M.A.R.T. objectives and adaptive communication principles.
3. Involve both scientists and communication professionals in the development of a communication plan on IAS.
4. Identify the relevant target segments of communication, their characteristics, influencers, connections, and potential preferred means of communication.
5. Select the proper communication style and content for the target segments.
6. Engage the target audience by promoting a two-way interaction and (possibly) leveraging on practical examples that trigger the recollection of a daily life experience in the audience.
7. Use keywords to formulate clear and concise key messages.
8. Formulate positive messages. Messages containing an optimistic view of a problem and vehiculated using positive words are more often appreciated by the audience than messages presented using pessimistic and catastrophic views.
9. Be aware of the possible reluctance of the target audience to eradication/removal towards a particular IAS (e.g., good-looking species) or the resistance to a behavioural change in some audience segments.
10. Ensure that technical documents are made available and communicated to the audience in a way that is adequately processed.
11. Take into consideration and benefit from already available communication plans on IAS as a basis to improve their efficacy based on the monitoring feedback.

## REFERENCES

- Beane, C. (2022 ). *4 Things You can't forget when developing a communication plan*. From Impact advisors: <https://www.impact-advisors.com/strategic-advisory/4-things-you-cant-forget-when-developing-a-communications-plan/>. Accessed on 09/09/2022.
- Bodensteiner, C. A. (1995). Predicting Public and Media Attention Span for Social Issues. *Public Relations Quarterly*, 14-19.
- Ennis, G. (2018 ). *The truth about social media and our attention spans*. From NSDesign: <https://www.nsdesign.co.uk/social-media-attention-spans/>. Accessed on 09/09/2022
- Núñez, M. A., Pauchard, A., & Ricciardi, A. (2020). Invasion science and the global spread of SARS-CoV-2. *Trends in Ecology & Evolution*, 35(8), 642-645.
- Tricarico, E. A. F. (2017). *Le specie aliene invasive: cosa e come comunicare al grande pubblico*. ISBN: 978-88-943544-0-9. Life ASAP - LIFE15 GIE/IT/001039.
- Worobey, J., Fonseca, D. M., Espinosa, C., Healy, S., Gaugler R., (2013). Child Outdoor Physical Activity is Reduced by Prevalence of the Asian Tiger Mosquito, *Aedes albopictus*. *Journal of the American Mosquito Control Association* 29(1), 78-80. <https://doi.org/10.2987/12-6296R.1>



## APPENDIX I – Examples of communication on Invasive Alien Species

### Example 1 – LIFE project LIFE15 GIE/IT/001039 – Alien Species Awareness Program (ASAP)

Source: <https://www.lifeasap.eu/index.php/en/project/asap-project>;  
<https://www.lifeasap.eu/index.php/en/what-you-can-do>

The Life ASAP project is a project co-financed by the European Union aimed at the reduction of the introduction rate of IAS in the Italian territory and the mitigation of their impacts. In particular, Life ASAP aimed at increasing the awareness and the active participation of citizens on the IAS issue.

Within ASAP a series of codes of conduct were embraced and made available in the local language as part of the communication strategy. The target audience of these codes of conduct is represented by very specific segments of the general public that more than others can be relevant for the accidental or voluntary spreading of IAS.

Identified segments are hunters, aquarists, plant and animal retailers, travelers, and gardening enthusiasts. For each segment, ASAP has developed a short informative statement on how a given segment contributes to IAS spreading and how this issue can be mitigated. As an example, we report here a statement on aquarists:

*“Aquarist is a hobby that involves raising fish, invertebrates, and aquatic plants in a domestic aquarium or a garden pond. The animal and plant species used in this activity are, for the majority, of exotic origin and almost 80% of ornamental import fishes come from Southeast Asia and Japan. Without the appropriate attention, the aquarist could represent a way of voluntary or accidental entrance of many alien species into the natural environment and it is therefore necessary to inform both the possible buyers, helping the choice of non-invasive species, and those who already own specimens of invasive alien species promoting a responsible behavior”.*

A further segment identified by ASAP is “professionals”. Although this communication target is very general, the corresponding statement is informative of the risks of IAS spreading associated with basically every economic operator:

*“Among the economic operators, beyond producers and traders of ornamental species, also the professional categories have to be considered, such as foresters, biologists, naturalists, agronomists, veterinaries, environmental engineers, architects and landscape designers, gardeners, environmental hiking guides, or wildlife technicians, that in their activities could accidentally facilitate the behavior more or less responsible of the owners of animals belonging to invasive species and maybe discourage the purchase.”*

**Example 2** – Life project LIFE18NAT/IT/000828 – Less alien species in the Tuscan Archipelago: new actions to protect Giglio island habitats (LETSGO GIGLIO)

Source: <https://www.lifegogiglio.eu/en/materials/>; [https://www.lifegogiglio.eu/wp-content/uploads/presentazione\\_progetto\\_EG-1.pdf](https://www.lifegogiglio.eu/wp-content/uploads/presentazione_progetto_EG-1.pdf)

The LIFE project LETSGO GIGLIO aimed at protecting the ecosystem and some native species on Giglio Island (Tuscan Archipelago National Park, Italy), by controlling the spread of and eradicating several IAS.

The communication campaign of LETSGO GIGLIO was mostly targeted at the island inhabitants and set the precise target of increasing awareness of the IAS issue in the above segment. The communication strategy was well diversified in terms of media used that include online resources such as a website, three social media, YouTube videos and webinars, coupled with more classical printed material such as roll-ups, flyers, and signs right in the areas where the project operations took place. Interestingly, LETSGO GIGLIO included a survey on the perception of IAS at the beginning of the project. Such a survey ensured a two-way communication strategy, where the feedback from the public could be used to monitor its reaction and adapt the communication campaign, accordingly. The survey repeated at the end of the project could be used to measure the effectiveness of the project and its communication plan.

A potential issue with the communication campaign of LETSGO GIGLIO was a very direct communication of the techniques used for eradicating the target IAS like “killing by specialised operators”, “Juda animal technique”, “catching the animals with traps”. Such words used in a flyer or on a webpage where a proper explanation of the scientific theory and technical details behind these methods is not possible, may generate a spontaneous adverse reaction in the audience (gut feeling), especially when the target IAS are mammals, birds, or beautiful plants. The adverse reaction that actually happened, especially from local environmentalist associations. The term “eradication” may also be perceived as brutal. Communication campaigns that leverage positive messages are more effective than those based on the negative side of the aspect.

**Example 3** – Warning signs on the risk of aquatic IAS spreading.

Warning signs as those proposed below are placed near lake and river jetties in North America. The signs target boaters and fishermen effectively because they are very well visible to anyone who is going to move a boat from a water body to another. They have pros and cons as shown below.

The sign in Photo 1 includes a short and visible message “Don’t let them catch a ride. Stop aquatic hitchhikers”, a further explanation on how boats can be a vector for IAS, a few very synthetic instructions on how to avoid IAS spreading and a picture of the most common IAS one should look for in/on a boat. Interestingly, the whole sign requires a few seconds reading.

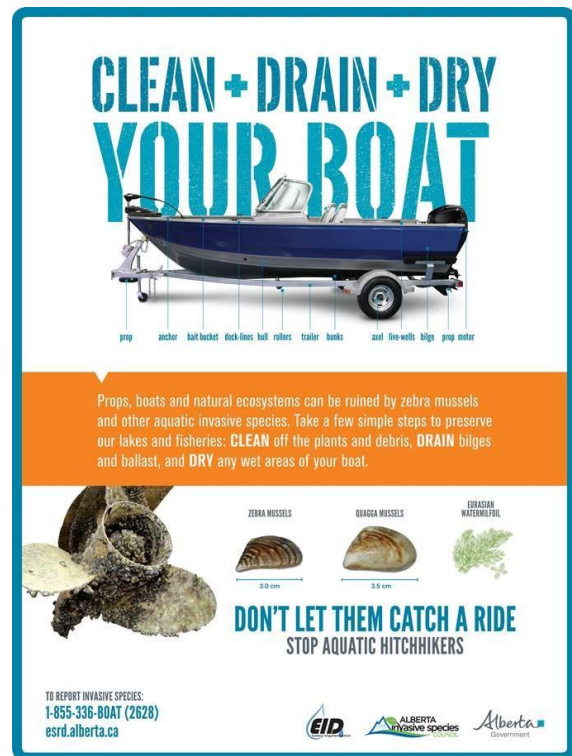


Photo 1: Glenmore Sailing Club. Available at: <https://www.glenmoresailingclub.com/Clean-Drain-Dry?emulatemode=2>



Photo 2: Albert Bridge [CC-BY-SA-2.0 (<http://creativecommons.org/licenses/by-sa/2.0>)], via Wikimedia Commons



The sign in Photo 2 is very clear, short, but it doesn't explain who/what are the hitchhikers. It implies that readers already have some understanding of the problem. Moreover, it blames the reader (or the boaters) as the words used indicate something like “it is your fault”.

The sign in Photo 3 is very attractive and visible thanks to the yellow background. However, it is too simplistic and anxiogenic. Moreover, it leverages fines, so it is punitive.

Photo 3: Source: <https://www.primarymedia.com/project/clean-drain-and-dry/>

**Example 4** – Warning signs on the risk of IAS spreading by hikers

The sign in Photo 4 suggests best practices for anyone entering a natural area for hiking, firewood collecting, or farmers, so it targets more than one specific segment that may spread IAS inadvertently. It is concise, very visible (yellow background) and informative on what one should do to prevent the spread of IAS. The word “prevent” vehiculate a positive message and does not blame the reader.

*Photo 4: Source: US Bureau of Land Management;  
<https://www.dontmovefirewood.org/resources/bureau-of-land-management-invasive-species-sign-2018/>*



### Example 5 – Invasive Species Northern Ireland website

Source: <https://invasivespeciesni.co.uk/>

This website presents the issue of IAS using a holistic approach and include information on species, legislation, link with other campaigns, and promote the involvement of citizens in IAS reporting. Although limited to northern Ireland in terms of species, the approach can be generalised to many other areas. It describes clearly and concisely what IAS are, their consequences, and their distribution.

The website is linked with other types of digital communications means like social media (Twitter, Facebook, YouTube), it proposes webinars and very importantly is constantly updated. It is a multilevel source of information with species datasheets that progressively deepen the level of details on a given IAS; the initial level is a simple list and a picture of each IAS, then one can look at more information like a description, habitat requirements, how to prevent a species spreading, etc. Finally, an identification guide is available for download. Importantly, the species datasheets explain why a particular IAS is a problem. The campaign involves citizens reporting IAS.

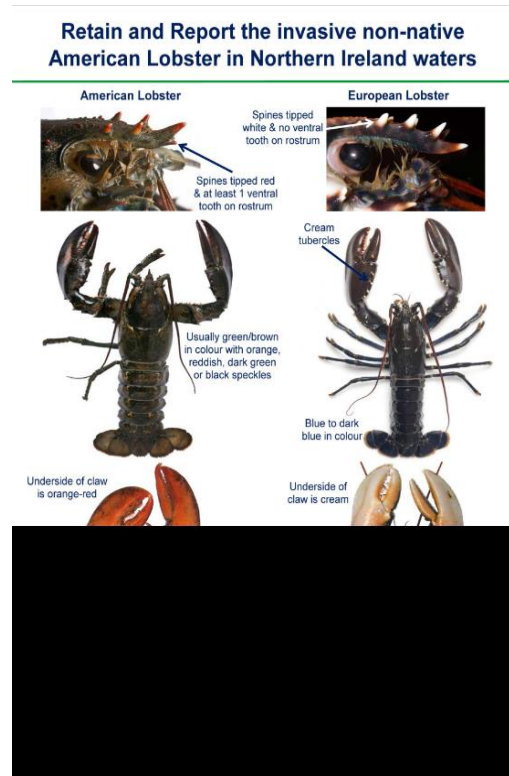


Photo 5: part of the species identification guide. Source: Invasive species Northern Ireland <https://invasivespeciesni.co.uk/wp-content/uploads/2020/07/NIEA-ID-Guide-ISNI-website-Elodea-species-Canadian-and-Nuttalls-WaterweedsV2.pdf>