

# East and South European Network for Invasive Alien Species (ESENIAS): Development, networking and role in the invasive alien species research and policy-making in Europe

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## Abstract

Many regional databases and organisations on biodiversity and invasive alien species (IAS) are available in Europe as well as other parts of the World. However, some major data gaps were evidenced for a number of East and South European countries. As a result of series of workshops held in the Balkan countries, the East and South European Network for Invasive Alien Species (ESENIAS) was established in 2011, in Sofia, Bulgaria. The aims of ESENIAS are to: exchange and share information on IAS; facilitate collaboration between institutions and IAS experts from East and South Europe; establish joint research activities on IAS; harmonise regional IAS policy development; and integrate information on IAS in East and South Europe into European and global IAS initiatives. Currently, ESENIAS has 12 member countries. Details of the ESENIAS workshops in the context of its development and working program, as well as its role in the IAS networking, research and policy-making issues at regional and European level are discussed in this paper.

## Key words

Invasive alien species, information, policy, research, awareness raising, East and South Europe

### Introduction

Many regional databases and organisations on biodiversity and invasive alien species (IAS) are available worldwide. In Europe, some informal groups, such as NEOBIOTA, which aims to enhance the communication between scientists and stimulate the research on IAS and dissemination of research outputs, have existed since over a decade (Kowarik and Starfinger 2009). Another research network was established for the aquatic invasive species in 2002, ERNAIS (European Research Network on Aquatic Invasive Species), which aims at providing the required knowledge base to elaborate relevant management measures at European and sub-regional level (Panov and Gollasch 2004; 2006). A particularly active sub-regional network in Europe is NOBANIS (<http://www.nobanis.org>), which included formerly the Nordic and Baltic countries, and then has extended its focus to central Europe. The purpose of this network, which is now based on the active cooperation between competent authorities of 19 countries in the region, is to: provide administrative tools for making the precautionary approach operational in preventing the unintentional dispersal of invasive alien species; gather and distribute information on introduced and invasive species from all participating countries in a common gateway; share information and experiences on the management of introduced and invasive species; raise awareness about IAS; and serve as an Early warning system for the region (NOBANIS 2010).

A workshop was organised by NOBANIS in collaboration with the European Environment Agency (EEA) and the IUCN/SSC Invasive Species Specialist Group (ISSG) in Ireland in Waterford (see [http://www.nobanis.org/events\\_EW.asp](http://www.nobanis.org/events_EW.asp)), which – among the other things – showed the potentialities to establish a similar network in the Balkan area. Another fundamental initiative at the European level is DAISIE (Delivering Alien Invasive Species Inventories for Europe, <http://www.europe-aliens.org>). As shortly summarised by Hulme and Weser (2011), this pan-European inventory of invasive alien species was funded by the European Commission under its Sixth Framework Pro-

gramme and allowed the collection of IAS data for all 27 European Union member states (and separately for their significant island regions), for other European states (Andorra, Iceland, Liechtenstein, Moldova, Monaco, Norway, the European part of Russia, Switzerland, Ukraine, the European part of Turkey, the states of the former Yugoslavia), and for Israel. The work within DAISIE has continued post-funding through various ad hoc arrangements among the original partner institutions.

Despite the above mentioned initiatives, some major data gaps were evidenced for a number of East and South European countries. For example, as already stressed in other papers (see Genovesi et al. 2009 for mammals), the information stored in the DAISIE database was likely to be geographically biased, with cases of undetected or unreported invasions in areas with less monitoring activities, as in some eastern European countries.

Two meetings held in 2010 stressed the need for cooperation on IAS at regional level in East and South European countries: “The Second International Workshop Invasive Plants in the Mediterranean Type Regions of the World” in Trabzon, Turkey (Trabzon Workshop) and “EEA/EIONET Workshop on Invasive Alien Species in West Balkan Countries” (Zagreb Workshop) in Zagreb, Croatia. After these workshops, a meeting held in Sofia, Bulgaria, in 2011, “EEA/EIONET Balkan Meeting on Networking Activities on Invasive Alien Species” (Sofia Workshop), led to the establishment of ESENIAS. The following “EIONET/EEA/ ESENIAS Workshop: Managing Invasive Alien Species in East and South European countries: the Way Ahead” held in Belgrade, Serbia, in 2012, was a meeting to draw the path of ESENIAS (Belgrade workshop). Since then, ESENIAS has organised its workshops yearly. The workshop in 2013 “International Workshop on IAS in Agricultural and Non-Agricultural Areas in ESENIAS Region”, held in Çanakkale, Turkey (Çanakkale Workshop), and this in 2014, which was organised together with NEOBIOTA 2014 in Antalya, Turkey (Antalya Workshop), focused mostly on presenting IAS research results from the ESENIAS countries.

Details of these meetings in the context and working program of ESENIAS, with aims of ESENIAS and its role in the IAS networking, research and policy-making issues at regional and European level will be discussed in this paper.

## **ESENIAS establishment and development**

### **Trabzon Workshop (2010)**

The focus of the Trabzon Workshop was the invasive alien plants (IAP) in the Mediterranean type of climates, which were discussed in four thematic sessions and 75 presentations. The workshop covered the Mediterranean basin and the Black Sea Region, both of which overlap with the ESENIAS area. The workshop pursued the establishment of EWIS (early warning and information system) in the Mediterranean and North African countries. The IAP spread due to high trade routes in the Black Sea and connected rivers was specifically mentioned. The workshop declaration clearly stated the importance of regional cooperation in the Mediterranean and Black Sea areas, which should include training of specialists, establishing of an effective EWIS system and exchanging of information (Fernández-Galiano and Brunel 2010; [https://archives.eppo.int/MEETINGS/2010\\_conferences/mediterranean\\_ias.htm](https://archives.eppo.int/MEETINGS/2010_conferences/mediterranean_ias.htm)).

### **Zagreb Workshop (2010)**

The workshop, which was a follow up of the Trabzon workshop declaration, was organised by the European Environment Agency (EEA), in cooperation with the IUCN/SSC Invasive Species Specialist Group (ISSG), and pursued the following key objectives:

- Share the information on invasive alien species within EU and neighbouring countries;
- Review the information available on invasive alien species in the West Balkan countries;
- Discuss the possible approaches for future activities and collaboration in view of the establishment of European EWIS.

The Zagreb workshop was thus a preliminary step and aimed at encouraging and supporting the establishment of EWIS in the West Balkan countries, to be coordinated and/or integrated into the European system, which is being developed. The following three key questions were discussed: 1) What are the challenges for managing invasive alien species in the West Balkan Region?; 2) What are the necessary elements for a strategy to facilitate the regional cooperation?; 3) What are the steps to establish regional collaboration and promote action?

Although there are differences among countries and sectors in terms of challenges, needs and future steps, the participants reached some common conclusions. One of the main conclusions stressed the importance of regional cooperation for sharing information and other scientific and technical resources as necessary means for effective implementation of measures to prevent, eradicate and control IAS. In addition, encouraging – with the active support of the EEA and the ISSG – all concerned actors (such as governments, the scientific community, conservation practitioners, local NGOs, national plant protection organisations, environment agencies and other appropriate stakeholders) to publicise and implement the recommendations below, which are the key results of discussions from the Zagreb workshop, related to the cooperation in the West Balkan region:

- Recognise and promote the regional coordination of action toward IAS in the West Balkan countries;
- Encourage and support the inclusion and integration of the West Balkan countries in the EWIS being developed in Europe;
- Promote the development and implementation of EWIS, at both the local and regional levels, on the basis of the technical document prepared by the EEA in cooperation with ISSG (Genovesi *et al.* 2010);
- Establish, with the technical support of ISSG, a network of concerned people, such as experts, representatives of national authorities, NGOs and international organisations, as well as identify national focal points;

- Take the opportunity of the network being developed to increase the level of sharing information – both at the Balkan scale and in the larger European context - on IAS related initiatives carried out, such as national or local monitoring schemes, risk assessments, control and eradication projects, management plans and national strategies;
- Maintain contacts with other existing networks such as ISSG, NOBANIS, NEOBIOTA, DAISIE, etc., or proposed networks, such as the Mediterranean and the Black Sea.

### **Sofia Workshop (October, 2011)**

The Sofia Workshop initiated the establishment of the East and South European Network on Invasive Alien Species (ESENIAS). This meeting represented a further follow up of the activities discussed during the previous mentioned workshops. It was organised by EEA through its Instrument for Pre-accession funds, in cooperation with the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences (IBER-BAS) and University of Forestry in Sofia. The patron of the meeting was the Ministry of Environment and Water of Bulgaria. Country representatives and experts from Albania, Bulgaria, Croatia, Greece, Kosovo under UNSC Resolution 1244/99, FYR Macedonia, Montenegro, and Serbia attended the meeting. Representatives of EEA, IUCN/SSC Invasive Species Specialist Group (ISSG) and NOBANIS also participated in the meeting.

The workshop had the following key objectives: 1) Review progress on IAS issues after the Zagreb meeting; 2) Share results of initiatives to develop a review and/or checklist of IAS in the West Balkan region; 3) Discuss possible regional networking activities on IAS; and 4) Initiate the development of an East and South European Network on IAS (ESENIAS).

The workshop participants agreed on the following:

1. *Recognise* the existence of invasive alien species as a major driver of biodiversity loss and socio-economic impacts, and as a main cause

of diseases in humans, animals and plants;

2. *Agree* on the importance of regional cooperation and recognise NOBANIS as a key initiative for sharing information and other scientific and technical resources as a necessary means for effective implementation of measures to prevent, eradicate, and control IAS;
3. *Are aware* of the difficulties in establishing a new network and the initiatives to develop a review and/or checklist of IAS in the West Balkan region;
4. *Agree* to initiate a new European network called the East and South European Network on Invasive Alien Species (ESENIAS) <http://www.esenias.org>, which will be hosted by the Bulgarian Academy of Sciences in partnership with the Ministry of Environment and Water, Bulgaria, with the active support of all participating countries;
5. *Recognise* ESENIAS as a network for sharing of information about activities and experience in the region;
6. *Invite* the other southern and eastern European countries to join ESENIAS;
7. *Elect* Ms Teodora Trichkova from IBER-BAS, Bulgaria, and Ms Milica Rat from University of Novi Sad, Serbia as co-chairs of the network;
8. *Assign* Ahmet Uludag the task to inform national focal points of participating countries and co-chairs of the network to invite other potential countries;
9. *Urge* chairs to create and launch a dedicated website as a first fundamental step of encouraging further networking;
10. *Seek* recognition and the support from other international and national bodies;
11. *Encourage* the preparation of joint projects on research, management and/or networking on IAS for submission to all potential funding authorities.

Furthermore, the participants discussed the organisational chart of the network, the design of the

dataflow, and the development of the regional internet data portal on IAS, which will serve as a forum for sharing information and knowledge on:

- IAS in East and South Europe – scientific names, biology, ecology, habitat, invasiveness, pathways of introductions, and impact (species lists, species factsheets; basic and more detailed information);
- First findings, distribution and spread of IAS in East and South Europe (species alerts; interactive distribution maps);
- Risk assessment and management information on IAS (risk assessment protocols, management option and practices, IAS action plans);
- Regulations, guidance, scientific references related to IAS in the region.

### **Belgrade Workshop (September, 2012)**

Thus, ESENIAS was born and started its first steps in Sofia. Establishing the network, initiating the website, and seeking recognition through presentations in scientific forums were its immediate activities. However, there was a need for a strategic plan. In this context, the Belgrade workshop was organised jointly by the European Environment Agency, ESENIAS, and the University of Novi Sad, Serbia, with the following objectives:

- Develop a work plan with actions for the development of the ESENIAS network, including further improvement of cooperation and networking on IAS in the region;
- Follow up on the initiative to develop a review and/or checklist of IAS in the region in order to develop a regional inventory;
- Share information on IAS related initiatives carried out at the regional level, such as national or local monitoring schemes, risk assessments, control and eradication projects, management plans and national strategies; citizens activities and responsibilities, society and monitoring schemes;
- Plan future work and organisation of this work, including establishing a secretariat for

ESENIAS and an information system on IAS in the region to enable sharing of data and other information on IAS;

- Explore options for cooperation with other regional and international organisations, such as the EEA, NOBANIS and the IUCN;
- Develop the structure and organisation of the dataflow to and within the ESENIAS website.

The ESENIAS work plan and time schedule were adopted. The meeting agreed to: continue to develop a list of invasive alien species in the ESENIAS region; develop lists of experts and institutions working with IAS in the region; develop a list of projects working with IAS and publications; publish an ESENIAS publication summarising the results of three years of work with ESENIAS.

### **Çanakkale Workshop (December, 2013)**

The fourth ESENIAS workshop was organised by the Faculty of Agriculture, Çanakkale Onsekiz Mart University (ÇOMÜ) (Çanakkale, Turkey), ESENIAS, and the IBER-BAS (Sofia, Bulgaria). The Workshop was funded by ÇOMÜ and Çanakkale Provincial Assembly. Participants were government representatives and national expert representatives, as well as scientists, experts and students from Albania, Bulgaria, Croatia, Greece, Montenegro, Romania, Serbia, and Turkey. The workshop aimed at:

- Share information on IAS in agricultural and non-agricultural areas;
- Exchange knowledge on related initiatives carried out at the regional level;
- Check the follow up of the work plan of ESENIAS, which was prepared in the previous meeting;
- Discuss the new EU Regulation on IAS;
- Check the progress toward the requirements of CBD 2020 Strategy and review the relevant developments in the region;
- Seek further improvement of cooperation and networking on IAS in the region and collaboration with other networks.

The workshop included 23 oral and 18 poster presentations focusing on the current situation of IAS in natural and agricultural areas in the region. Round tables with discussions were also organised. A book of Proceedings with 45 contributions – abstracts and extended abstracts - was published (Uludag et al. 2014a).

The Çanakkale workshop participants:

1. *Recognise* the invasive alien species as a cause of economic losses in agricultural areas, pollution in environment and health problems, as well as a major driver of biodiversity loss. In particular, pests are more detrimental because of lack of control practices and environmental defense mechanisms;
2. *Stress* again the importance of regional cooperation on IAS;
3. *Suggest* the following developments in EU aquis in order to have scientifically sound and acceptable results;
4. *Recommend* to non-EU members of ESENIAS to establish rules and develop aquis on IAS in line with the new EU Regulation on IAS;
5. *Urge* ESENIAS countries to follow up CBD 2020 Strategy;
6. *Require* completing the ESENIAS book as soon as possible to increase the visibility and impact of the ESENIAS network, to facilitate the circulation of information on IAS in the target region and beyond.

### **Antalya Workshop (November, 2014)**

The fifth ESENIAS workshop was held together with NEOBiota 2014, the 8th International Conference on Biological Invasions: From Understanding to Action, in Antalya, Turkey. ESENIAS was co-organiser of NEOBiota 2014. Within the conference a special ESENIAS-NEOBiota Session: *Alien species in East and South Europe*, and a round table discussion was organised. The session included 7 oral and 17 poster presentations, which were published in the conference Proceedings (Uludag et al. 2014b). During the round table, the participants discussed current project and

publication activities, IAS data collection, organisational issues within the network, as well as the ESENIAS working plan for 2015.

### **ESENIAS goals and structure**

The summaries of the meetings reported above show the clear understanding of the IAS related issues by the ESENIAS community. The focus of ESENIAS is to:

- Exchange and share information on invasive alien species;
- Facilitate collaboration between institutions and IAS experts from SE Europe;
- Establish joint research activities on invasive alien species (publications, projects);
- Harmonise regional IAS policy development;
- Integrate information on IAS in East and South Europe into European and global IAS initiatives.

Currently, ESENIAS is composed of 12 participating countries (Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Greece, Kosovo under UNSC Resolution 1244/99, FYR Macedonia, Italy, Montenegro, Romania, Serbia and Turkey). Two countries (Hungary and Slovenia) participate as observers and possible collaborators. The participating countries are represented by 10 governmental organisations (Environmental Agencies and Ministries) and 11 scientific organisations (Universities and Academia).

### **The role of ESENIAS in IAS research**

ESENIAS has participated in the implementation of two research projects. The first one, entitled “Climate Change and Invasive Alien Species – growing threats to biodiversity and ecosystem functions in ancient Lake Ohrid and its watershed” was implemented in 2012-2014 by FYR Macedonia, Bulgaria, and Albania, and funded by the Royal Norwegian Embassy – Skopje/ Belgrade.

The second project was implemented jointly by ES-

ENIAS and the International Association for Danube Research (IAD): “Potential threats to environmental and economic sustainability in the Danube and Black Sea Region: Danube River as invasive alien species corridor”. It started in 2012 and is ongoing. A regular (annual) IAS monitoring has been implemented in the Bulgarian sector of the Danube River within the frame of this project.

Some of the research results from these and other projects in the ESENIAS region have been summarised in the Proceedings from the Çanakkale Workshop (Uludag et al. 2014a) and NEOBIOTA 2004 Proceedings (Uludag et al. 2014b), as well as in the current volume.

### **The role of ESENIAS in networking and policy-making**

All ESENIAS countries are clearly aware of the progress made at the EU level on the issue and acknowledge that IAS are one of the most important environmental issues due to increasing trends and impact related to global changes, such as those driven by trade, travel and climate change. The growing perception of the impact of IAS as a major driver of biodiversity loss is stressed by a number of policy strategies being developed. During the ESENIAS workshops, it was noticed that according to the recent CBD strategic plan for the period 2011-2020 (Target 9) “By 2020, invasive alien species and pathways are identified and prioritized, priority species are controlled or eradicated, and measures are in place to manage pathways to prevent their introduction and establishment”. In addition, at EU level, steps had been undertaken on IAS issues, as indicated by the Commission’s Communication (COM(2006) 216 final) - which stressed the need to substantially reduce the impact of invasive alien species and alien genotypes on EU biodiversity, and highlighted the need to develop specific actions including an early warning system - and the Commission’s Communication ‘Towards an EU Strategy on Invasive Species’ (COM(2008) 789 final). An essential part of this strategy is the development of EWIS for

alien species in Europe, which has been the subject of the 2010 EEA technical report (Genovesi et al. 2010). The new Regulation (EU) No 1143/2014 on the prevention and management of the introduction and spread of invasive alien species also gives a special attention to EWIS, which cannot be completed without the Western Balkan countries, even the Northern African and Black Sea countries. ESENIAS can be a bridge between the non-EU countries, including the Black Sea and North Africa countries, and the EU countries, having members from both backgrounds, to develop and implement the EU level plans. Gathering resources in the ESENIAS region, policies and activities to combat IAS from other regional organisations, such as the Council of Europe (CoE) and the European and Mediterranean Plant Protection Organization (EPPO), can be better supported for the benefit of the ESENIAS countries and surrounding area at large.

The role of ESENIAS as a key regional network, along with other initiatives, such as DAISIE, NOBANIS, and MAMIAS, has been fully acknowledged by Katsanevakis et al. (2013) who highlighted the importance of the cooperation with this network for the validation and integration of the information originating from various sources in the European countries, particularly in the light of the new European Alien Species Information Network (EASIN) initiative at the EU level. Additionally, EASIN, along with the other initiatives, has been recognised of having an important role in motivating and assisting countries in updating their alien species inventories. In fact, as stressed by Katsanevakis et al. (2013), often regional and European initiatives are the only channels for reporting information on alien species, and some countries would not have national lists of alien species if not compiled for them. Most importantly, they have a major role in networking, the ultimate verification of information, and the production of the knowledge needed to support the European policies and to provide further advice for political decision-making (e.g. assessment of pathways of introduction, assessment of impacts, management options and risk assessments).

Furthermore, ESENIAS initiates and supports the establishment of new IAS regional networks. Together with the Priority Area 06 of the EU Strategy for the Danube Region (PA 06 EUSDR), represented by the Bavarian State Ministry of Environment and Consumer Protection, IAD and IBER-BAS, ESENIAS organised the “Danube Region Invasive Alien Species Network (DIAS) Kick-off Meeting”, held in October 2014 in Sofia, Bulgaria. The role of this new network, supported by ESENIAS, is to facilitate the transnational and international communication and cooperation on issues related to alien species in the Danube Region, and the first step of its activities will be the preparation of a Strategy for IAS in the Danube Region.

The new Regulation (EU) No 1143/2014 and new EU plant and animal health rules increase the responsibilities and role of ESENIAS and related regional IAS networks, because of the needs of comprehensive databases to implement the regulations properly. Therefore, the developed database, raised awareness and improved regional cooperation in the ESENIAS countries will contribute to the implementation of the regulations and solving IAS issues in other EU and non-EU European countries.

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