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# Critical legal and environmental view on the Ramsar Convention in protection from invasive plant species: an example of the Southern Pannonia region

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**Abstract** The emergence and continued expansion of one of the most dangerous causes of biodiversity loss and habitat alteration such as invasive species at some Ramsar wetlands of the Southern Pannonia raise a series of questions of both an environmental as well as a legal character relevant to these fragile ecosystems. The Ramsar Convention provides

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a set of general instructions and guidelines, but it does not establish an adequate mechanism of sanctions that could be imposed on states or individuals who violate its provisions. Fully aware of the importance of wetlands and their wildlife for a healthy living environment and human welfare, the authors of this paper describe the present conditions of invasive plant species at some Ramsar Sites and briefly analyze the current legal framework for the implementation of the Ramsar Convention. Finally, the authors propose innovative normative solutions that would improve the protection of wetlands and contribute to the suppression and prevention of the presence of invasive species not only in this region, but also worldwide.

**Keywords** Ramsar Convention · Amendments · Plant invaders · Biodiversity loss · Southern Pannonia

## 1 Introduction

Wetlands are fragile ecosystems, in the context of self-sustainability, sensitivity and ability to cope with natural and human-caused negative impacts. Those negative factors can easily cause habitat alterations, fragmentations, changes in species abundance and composition (Nilsson and Grelsson 1995; Wells 2014). Nowadays, these complex and sensitive natural ecosystems are rare and endangered (Finlayson and D’Cruz 2005). Wetlands are one of the two types of the most endangered ecosystems in the world (Smart 1997). People have been using them for centuries, however, not as natural habitats, but after altering their basic characteristics. Drying out and transforming these habitats into agricultural areas has led to their disappearance. The Convention on Wetlands of International Importance especially as Waterfowl Habitat, also known as the Ramsar Convention (1971), is the only global convention<sup>1</sup> which is related to these particular sorts of habitats and recognizes the value of wetlands and their resources. The Ramsar Convention represents “an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.”<sup>2</sup>

The Ramsar Commission has translated the developing science base into practical agreements on the wise use of wetlands, to be implemented by a growing number of signatories and at an expanding network of designated sites (Everard 1997). This actually means that modern scientific achievements in the field of technology and agriculture have brought us new, more sophisticated and efficient ways to explore and exploit wetlands and use them for our benefits, by, for example, drying the terrain more easily and re-directing the flow of rivers that are connected to the wetlands, thereby changing the population of wetland flora and fauna. Practical agreements, as rather informal agreements (bilateral or multilateral) between subjects from different states such as companies or institutions, are also significant for this issue because they regulate some everyday issues on the use of wetlands that are on their territory. Today, the Convention has 168 contracting parties, over 2177 sites designated for the Ramsar List and “covers” a total surface area of more than 208,518,409 hectares.<sup>3</sup> What makes this international document even more important is its recognition that waterfowl, which are ecologically dependent on the wetlands that are their

<sup>1</sup> Which means a type of multilateral agreement that is recognized in public international law.

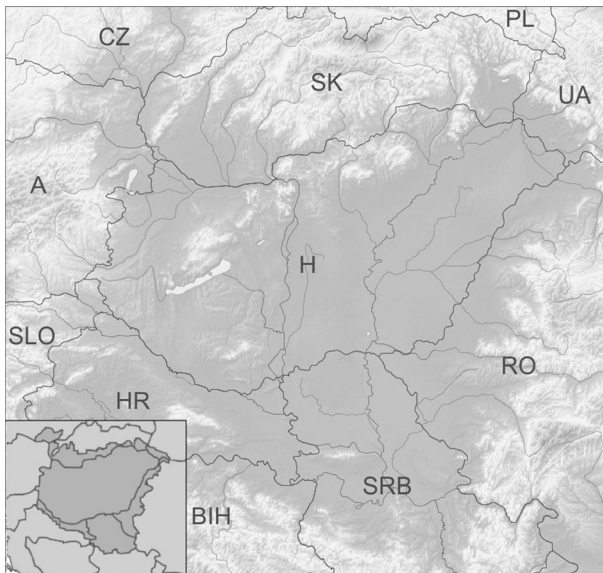
<sup>2</sup> According to data available at “About Ramsar.” The Ramsar Convention on Wetlands.

<sup>3</sup> According to data available at “The Convention Today. The Ramsar Convention on Wetlands.

natural habitats, transcend frontiers in their seasonal migrations (Newton 2010) and so have to be regarded as an international resource.

An invasive alien species (IAS) is an alien species that becomes unintentionally or deliberately established and widespread in natural or semi-natural ecosystems which are outside of their natural range and causes changes and threatens native biological diversity of habitats in which they spread (SSC 2000). They occur in all taxonomic groups, including animals, plants and fungi. Among the worst known in Europe, for instance, are the “common ragweed” (*Ambrosia artemisiifolia* L.), “Japanese knotweed” (*Fallopia japonica* (Houtt.) Ronse Decr.), the “killer slug” (*Arion vulgaris* Moquin-Tandon) and the “harlequin ladybird” (*Harmonia axyridis* Pallas) (DAISIE 2003).

In this article, we focus on the Ramsar Convention with a special reference to the preventive effects that its provisions have on the presence of invasive alien species (IAS) in Ramsar Sites. Moreover, we emphasize the need to extend, revise and/or supplement some of the Ramsar Convention’s provisions to strengthen their enforcement. To discuss this matter, we have analyzed the Convention’s impact on national legal systems and its application in the region under study. In addition, we have also attempted to highlight the missing legislative provisions that would provide an adequate legal mechanism to prevent the emergence, expansion and/or establishment of IAS. We also put forward some alternatives and additional ways to improve the implementation of the Ramsar Convention in the context of combating IAS. The objectives of this paper are based upon our direct findings and data derived from relevant legal and scientific sources referring to the area we studied—the Southern part of the Pannonian Plain, which includes parts of three states: Southern Hungary, Northeastern Croatia and Northern Serbia.



**Fig. 1** Map of the Pannonian Basin. Abbreviations for countries: *H* Hungary, *SK* Slovakia, *PL* Poland, *UA* Ukraine, *RO* Romania, *SRB* Serbia, *BIH* Bosnia and Herzegovina, *HR* Croatia, *SLO* Slovenia, *A* Austria, *CZ* Czech Republic (source of the main map: Dederling (2010). Location map of Pannonian Plain: [http://commons.wikimedia.org/wiki/File:Pannonian\\_Plain\\_relief\\_location\\_map.jpg](http://commons.wikimedia.org/wiki/File:Pannonian_Plain_relief_location_map.jpg), and after the map by the European Environmental Agency (2005): <http://www.eea.europa.eu/data-and-maps/figures/biogeographical-regions-europe-2005-with-national-boundaries>)

The Pannonian Basin is located in the southeastern part of Central Europe. It is surrounded by mountain ranges: Carpathians to the north and east, the Dinarides to the south and the Eastern and Southern Alps to the west. The Pannonian Plain (Fig. 1) is the lowland of the Pannonian Basin with an average elevation of 150 m above sea level. The Pannonian Plain lies within parts of the countries Hungary, Slovakia, Ukraine, Romania, Serbia, Croatia, Slovenia and Austria (Tari 1994).

## 2 The Ramsar Convention and its impacts on national legal systems

The Ramsar Convention is a framework of guidelines that instructs its Contracting Parties on the wise use of wetlands. These guidelines are expected to be followed by the contracting parties. The Convention also contains an established list of goals the Contracting Parties should endeavor to accomplish in the preservation, protection and improvement in wetlands. For example, according to Article 2, Paragraph 1 of the Ramsar Convention “Each Contracting Party is obliged to designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance.” Furthermore, according to Article 3, Paragraph 1 of the Ramsar Convention “The Contracting Parties shall formulate and implement their planning so as to promote the conservation [...] and [...] the wise use of wetlands in their territory.” Another example of guidelines is Article 4 Paragraph 1, which prescribes that every Contracting Party “should as far as possible compensate for any loss of wetland resources, and in particular it should create additional nature reserves for waterfowl.” Significant guidelines are also presented in Paragraphs 3, 4 and 5 of Article 4. According to these guidelines the Contracting Parties should “encourage research and the exchange of data and publications regarding wetlands and their flora and fauna,” “endeavor [...] to increase waterfowl populations on appropriate wetlands” and “promote the training of personnel competent in the fields of wetland research, management and wardening.”

However, like many other international sources of law, it does not seem to provide an efficient mechanism of legal measures that would ensure its implementation. This is not the most proper solution because there is no way to force a state to implement the guidelines that are set in the Ramsar Convention. Therefore, a state can fail to respect the Convention without any form of sanctioning.

The Contracting Parties adopted two resolutions (Resolution VII.14 1999 and Resolution VIII.18 2002), both dealing with the issue of IAS and wetlands and calling upon the Contracting Parties to address the environmental, economic and social impact of IAS in wetlands within their jurisdictions.

Resolution VII.14 1999 states that the Contracting Parties should take account of the methods of control and solutions for combating IAS (Howard 1999) and “urges them to review their existing legal and institutional measures pursuant to Resolution VII.7 (1999) and, where necessary, to adopt legislation and programs to prevent the introduction, movement or trade of new and environmentally dangerous alien species into areas under their jurisdiction.” Resolution VIII.18 of (2002) emphasizes “the need to address the problems caused by invasive alien species in wetland ecosystems in a decisive and holistic manner, making use, as appropriate, of the tools and directions developed by various institutions and processes, including any relevant guidelines or guiding principles adopted under other conventions.” In spite of their scientific and ethical value, these resolutions are not legally binding in the sense that they do not prescribe any form of liability for states or individuals

who violate the instructions their provisions contain. In this context, the scientific value of these resolutions is derived from the fact that they contribute to the development of scientific exploration of wetlands by officially recognizing the significance and impact of IAS and by giving instructions to the Contracting Parties on how to deal with the problem of IAS. The statement that these resolutions also possess ethical value means that they oblige the Contracting Parties in a moral manner with the expectation that they will be upheld. Here, the term “ethical” is used in a more descriptive way, primarily as a contrast to “legal.” Such a situation is not satisfactory, because there is no way to force the states to respect and obey the provisions of the resolutions by, for example, obliging them to pay a fine.

As there are no “official” legal obstacles prescribed by the Convention, measures adopted by national legislators may, but do not necessarily have to include criminal—legal or administrative—sanctions. They also may provide measures primarily focused on the prevention of endangering factors, scientific research and raising public awareness. The Ramsar Convention only indirectly impacts national legal systems, especially in the field of criminal and administrative law by setting general guidelines and allowing national legislators to determine which behaviors directed against wetlands and their wildlife are to be treated as illegal acts.

### 3 The application of the Ramsar Convention in the region of Southern Pannonia

The former Socialist Federal Republic of Yugoslavia ratified the Convention in 1977. During the 1990s, it split into five independent states and all former Yugoslav republics subsequently became contracting parties to the Ramsar Convention. To date, the Republic of Croatia has reported five Ramsar sites, and the Republic of Serbia has reported ten. Meanwhile, the Republic of Hungary has a total of 29 Ramsar Sites.<sup>4</sup>

To harmonize its ecological legislation with European Union (EU) standards, the Republic of Serbia has made significant efforts in the field of environmental protection, particularly since ratification of the Ramsar Convention. Being EU Members, the Republic of Hungary and the Republic of Croatia have already harmonized their legislations with the EU legal system. The legal system of the EU is based on treaties voluntarily and democratically approved by all EU member countries. Under these treaties, the EU institutions can adopt legislation, which is then implemented by the member states. As wetland ecosystems represent a part of the natural environment, their conservation is regulated by those EU legal acts that refer to environmental issues. However, wetland use and protection can also be covered by those EU legal documents that regulate agriculture and food production. The most important EU documents that contain provisions relevant to protection of wetlands and their biodiversity include: Directive 2009/147/EC on the conservation of wild birds,<sup>5</sup> the EU biodiversity strategy to 2020<sup>6</sup> and the EU Action Plan for

<sup>4</sup> According to “List of Wetlands of International Importance” from January 29, 2014.

<sup>5</sup> Article 4 Paragraph 2 of the Directive 2009/147/EC of the European Parliament and of the Council of November 30, 2009, on the conservation of wild birds.

<sup>6</sup> “Our life insurance, our natural capital: an EU biodiversity strategy to 2020.” Communication from the Commission to the European Parliament, the Council, the Economic and Social Committee and the Committee of the Regions (COM(2011) 244 final, 2011).

biodiversity.<sup>7</sup> However, it has to be pointed out that the aforementioned documents represent only examples and that legal protection of wetlands in the EU cannot be observed separately and without concerning the entire corpus of the EU legal documents dedicated to the protection of environment and biodiversity.

As explained by Everard (1997:225), “despite there being a significant body of legislation and agreements supporting the wise use of wetlands, an inadequate degree of protection still exists.” This has become a global trend and can be seen in this region as well. The laws of the Western Balkan countries Croatia<sup>8</sup> and Serbia,<sup>9</sup> on the other hand, treat wetlands, included in the Ramsar List, as a type of “protected natural good” called protected areas. A similar situation is present in Hungary. Hungarian Nature Protection Law (1996)<sup>10</sup> provides fines for those who fail to act in accordance with legal documents or special decisions regarding nature protection. Unfortunately, this law does not explain whether relevant institutions will also be responsible if they fail to protect wetlands from invasive species. Although these legal documents do incriminate certain unacceptable human activities that harm or threaten protected species and habitats and prescribe appropriate fines, they do not contain provisions that would be dedicated exclusively to the protection of wetlands from invasive species. Therefore, it is not legally declared as obligatory to impose punishment (neither criminal nor administrative) to individuals (natural persons) or institutions (legal persons) who are expected to apply such measures in accordance with the Ramsar Convention. Administrative punishment is a special type of punishment for violations of the provisions that belong to a special branch of law called administrative law. These violations are called administrative offenses. These offenses are not criminal offenses, but a special type of minor offenses that, in spite of being “less serious,” still require some kind of reaction from the state. Administrative offenses can also be described as misdemeanors (which are minor offenses present in common law). Administrative punishment usually consists of a fine (the obligation to pay a certain amount of money to the state administration), but, in some cases, it may also include imprisonment. Failure to prevent the appearance of IAS is not officially proclaimed as an offense, and existing legal provisions allow the court to decide in each individual case whether such conduct represents a violation of the law, which certainly does not contribute to legal certainty. On the other hand, it seems obvious that passive behavior or failing to undertake activities that are necessary to facilitate full implementation of the Convention and, hence, to provide appropriate protection and conservation of wetlands and waterfowls represents a form of violation of its provisions. Such behavior can be considered a breach of international obligations that each of the Parties (including Hungary, Croatia and Serbia) accepted by ratification. Namely, the Constitutions of these countries emphasize that ratified international treaties and generally accepted rules of international law represent parts of their legal system or internal legal order,<sup>11</sup> which means that these documents are supposed to be treated at least with the same respect as national legal provisions.

<sup>7</sup> Article 3.1. of “Halting the Loss of Biodiversity by 2010—and beyond, sustaining ecosystem services for human well-being.” Communication from the Commission (COM(2006) 216 final, 2006).

<sup>8</sup> According to Nature Protection Law. Official Gazette of the Republic of Croatia, No 70/2005, 139/2008 and 57/2011.

<sup>9</sup> According to Nature Protection Law. Official Gazette of the Republic of Serbia, No 36/2009 and 88/2010.

<sup>10</sup> According to Act No LIII of 1996 of Law on Nature Conservation in Hungary (1996. évi LIII törvény a természet védelméről).

<sup>11</sup> According to: Article 194 of The Constitution of the Republic of Serbia (2006), Article 134 of The Constitution of the Republic of Croatia (2010) and Article Q of The Fundamental Law of Hungary (2011).

Consequently, acting against or failing to act in accordance with the principles proclaimed by a ratified international treaty also represents a contra-constitutional practice. This situation has certain ecological repercussions including the occurrence and uncontrolled expansion of IAS on the territories of wetlands from the List of Ramsar Sites that are supposed to be monitored and protected from negative impacts.

#### 4 Invasive plant species as one of the most negative impacts in Ramsar Sites

Until recently, formerly vast wetlands of Southern Pannonia were being extensively drained (Tanasijević 1972), and this can also be seen by examining historical maps of this area (Zentai 2008). As a result, these wetlands have been turned into arable fields and meadows. Today, there are only fragmented, isolated wetlands and wet meadows. Many of the remaining wetland ecosystems are protected under national laws, whereas some of them are preserved at an international level under the Ramsar Convention. Eleven Ramsar Sites located in the Southern part of the Pannonian Plain are analyzed in this paper (Table 1).

As elsewhere in Ramsar Sites around the world (Porter and Blackmore 1998; Notawasaga Valley Conservation Authority 2001; Brandão 2003; McCoy 2005; Zhizhong 2007; Joint Nature Conservation Committee 2011; NSW Office of Environment and Heritage 2012), IAS are also present in the analyzed areas in Southern Pannonia. This especially refers to invasive plant species. In general, IAS represent the second highest risk factor for biodiversity loss after habitat destruction (Brennan and Withgott 2005). Many authors have described how invasive plants threaten biodiversity and the stability of ecosystems (Richardson 1998; Starfinger et al. 1998; Wilcove et al. 1998; Richardson et al. 2000; Hejda et al. 2009; Vološčuk 2012).

There are numerous publications (Mihály and Demeter 2003; Török et al. 2003; Tiborcz et al. 2012; Mihály and Botta-Dukát 2004; Botta-Dukát and Mihály 2006) analyzing the presence and impact of invasive plant species in Ramsar areas of Hungary. The most recent publication by Csiszár (2012) contains comprehensive data on invasive plants and regions, among which the sites that are subjects of our interest are also studied. According to data from this publication, it was concluded that the invasive plants cause disturbance in Ramsar sites of the Southern part of Hungary: Szaporca, O-Dráva meder, Pusztaszer, Gemenc and Beda-Karapanca. Among the most harmful invasive plant species are *Acer negundo* L., *Amorpha fruticosa* L. and *Solidago gigantea* Aiton in all five sites.

Three of the five Ramsar sites in Croatia are situated in Southern Pannonia, belonging to the Pannonian and peri-Pannonian vegetation zones. Those are Kopački rit, Crna Mlaka, Lonjsko and Dobro Polje. According to the list of non-indigenous flora of Croatia (Nikolić 2009), preliminary checklist of IAS in Croatia (Boršić et al. 2008) and our field research, invasive plants appear in all of these sites. For example, the species *Solidago gigantea* Aiton, *S. canadensis* L. and *Erigeron annuus* (L.) Pers. form high, dense stands of herbaceous vegetation. However, the most aggressive and abundant is the invasive shrub species *Amorpha fruticosa* L. (especially in Lonjsko polje Ramsar site), forming dense, monodominant stands. In general, invasive alien flora is highly frequent in disturbed Ramsar habitats, which is to a great extent the consequence of negative anthropogenic interference.

There are very few publications on the presence of invasive plant species in Serbia in general (Vrbničanin et al. 2004; Lazarević et al. 2012; Anačkov et al. 2013), and even



**Table 1** Observed Ramsar sites of the southern part of the Pannonian Plain

Ramsar site name	Country	WI site reference	Ramsar site no	Geographical position	Designation date	Coordinates of site center (degrees NS EW)	Total site area (ha)	Transboundary	Administrative region	International conservation designation	National conservation designation
Szaporca, O-Dráva meder	HUN	3HU001	182	Inland	11/04/1979	45°48'N 18°06'E	257	Yes	Baranya	IBA, IPA	National park, nature reserve
Pusztaszter	HUN	3HU007	188	Inland	11/04/1979	46°26'N 20°08'E	5000	Yes	Csongrád	IBA, IPA	National park, Landscape protection area, Nature conservation area
Gemenc	HUN	3HU015	900	Inland	30/04/1997	46°15'N 18°51'E	16,873	No	Tolna	IBA	National park, landscape protection area
Béda-Karapancsa	HUN	3HU016	901	Inland	30/04/1997	45°56'N 18°45'E	1150	Yes	Baranya	IBA	National park, Landscape protection area, nature reserve
Kopački rit	CRO	3HR002	583	Inland	2/03/1993	45°40'N 18°54'E	23,894	Yes	Baranja	IBA	Nature park
Črna Mlaka	CRO	3HR001	582	Inland	03/02/1993	45°37'N 15°44'E	625	No	Kupa Basin	IBA	Ornithological reserve
Lonjsko Polje and Mokro Polje	CRO	3HR003	584	Inland	03/02/1993	45°30'N 17°00'E	50,560	Yes	Moslavina	IBA	Nature park
Obedska Bara	SRB	3RS001	136	Inland	28/03/1977	44°44'N 20°00'E	17,501	No	Vojvodina	IPA, IBA	Special nature reserve
Čarska Bara	SRB	3RS003	819	Inland	25/03/1996	45°15'N 20°23'E	1767	No	Vojvodina	IPA, IBA	Special nature reserve

Table 1 continued

Ramsar site name	Country	WI site reference	Ramsar site no	Geographical position	Designation date	Coordinates of site center (degrees NS EW)	Total site area (ha)	Transboundary	Administrative region	International conservation designation	National conservation designation
Labudovo okno	SRB	3RS005	1655	Inland	01/05/2006	44°48'N 21°18'E	3733	No	Vojvodina	IBA	Special nature reserve
Gornje Podumavlje Zaslavica	SRB	3RS007	1737	Inland	20/11/2007	45°45'N 18°57'E	22,480	No	Vojvodina	IPA, IBA, PBA	Special nature reserve
Koviljsko – Petrovaradinski Rit	SRB	3RS009	1783	Inland	1.3/03/2008	44°56'N 19°31'E	1913	No	Vojvodina, Mačva	IPA, IBA, PBA	Special nature reserve
	SRB	3RS010	2028	Inland	08/03/2012	45°10'N 20°04'E	8292	No	Vojvodina	IPA, IBA	Special nature reserve

Data were taken from the Ramsar Site Information Service and updated. <http://ramsar.wetlands.org/RamsarSitesInformationService/tabid/719/Default.aspx>

fewer on the topic of invasive plants in protected Ramsar areas (Panjković and Stojšić 2001; Čavlović et al. 2011). The most recent data on invasive plants in selected Ramsar sites have been collected in our field research and deposited in the Herbarium of the University of Belgrade (Thiers 2010). Invasive plants are found in all Ramsar sites of the Pannonian part of Serbia, and the following sites are selected due to a high degree of disturbance: Carska Bara, Koviljsko-Petrovaradinski Rit, Obedska bara, Gornje Podunavlje and Zasavica. There is a high risk of habitat degradation because some plant invaders establish clearly segregated plant communities and form new types of habitats, like the woody species *Acer negundo* L. and *Fraxinus pennsylvanica* Marshall, which is particularly prominent in the Carska Bara site. In the Gornje Podunavlje Ramsar site, the species *Solidago gigantea* subsp. *serotina* (O. Kuntze) McNeill is the most common and widespread.

All monitored invasive plant species have been found to significantly alter the community composition and thus the habitat types in our observed Ramsar sites.

There are several methods to mitigate the adverse impacts of IAS. The most suitable option is prevention of the introduction of IAS, which is also considered to be the most effective one. However, as already mentioned, the analyzed invasive plants are already widespread in the observed Ramsar sites. This means that other methods for combating IAS need to be applied, including eradication, containment and control. Although these methods are still being used in the EU and Serbia, they appear to be insufficient. The situation in Serbia is the same as that in the EU—“action (to tackle some IAS) is predominantly reactive, seeking to minimize the damage already being caused.”<sup>12</sup> Furthermore, some obstacles to the implementation of all three of these methods still exist (SSC 2000; Genovesi and Shine 2003) and thus some derogations in the sense of serious negative impacts, technical and cost–benefit analysis.<sup>13</sup>

It should not be forgotten that IAS are serious competitors with native species and can easily create monodominant communities, change community and habitat structure, regime and nutrient cycle and significantly affect the functioning of ecosystems (Elton 1958; Drake and Mooney 1989; Di Castri et al. 1990; Williamson 1996; Tilman 1999; UNEP/CBD/SBSTTA 2001; Pyšek and Richardson 2010). It is clear that the presence and expansion of IAS represent an extremely dangerous factor for Ramsar-protected habitats. Bearing in mind that all observed Ramsar sites are also important bird areas (BirdLife International 2014) of great significance for migratory routes, feeding and/or nesting of waterfowls, it can be concluded that the situation regarding the degree of vulnerability of these protected wetland habitats is alarming. Awareness and knowledge of the negative consequences of the presence, expansion and establishment of stable communities of IAS in ecosystems summarize and confirm the high level of degradation of the Ramsar sites we studied, as well as of other sites where IAS have established.

<sup>12</sup> Simplified Financial Statement. “Proposal for a Regulation of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species.” European Commission (COM(2013) 620 final, 2013).

<sup>13</sup> Article 16 of the “Proposal for a Regulation of the European Parliament and of the Council on the prevention and management of the introduction and spread of invasive alien species.” European Commission (COM(2013) 620 final, 2013).

## 5 Discussion and conclusions

It has been demonstrated that IAS are able to successfully colonize and drastically change or modify wetlands (Bridgewater 2008). The current situation regarding invasive plant species in the wetlands of the Southern Pannonia region confirms such presumptions and raises numerous questions on the implementation of the Ramsar Convention in this area. However, the most urgent question is: “Which legislative measures should be taken to stop current and prevent future expansion of IAS?” The Convention contains a series of measures that Contracting Parties are expected to take to preserve their wetlands and waterfowls, but it lacks a provision that would oblige its signatories to establish an adequate legal mechanism with the purpose to ensure its efficient implementation and provide appropriate sanctions for its breach. Establishing a legal framework for the implementation of the Convention is entirely left to national legal systems of the Contracting Parties and depends upon the will of their legislators. Consequently, the responsibility of individuals or institutions for its breach might easily be left out from relevant national laws. So, the violation of international obligations derived from the ratification of the Convention does not necessarily have to constitute criminal, administrative or civil responsibility of those who are empowered and obliged to ensure its implementation. This brings under question the essential purpose of this international document. Therefore, introducing some alterations and additions to the initial version of the Ramsar Convention either in the form of Protocols or in the form of Amendments as direct changes and alterations of its current text should also be taken into consideration. A solution contained in another significant international legal document—the Convention on Biological Diversity (CBD 1992)—might be discussed as one of the possible guidelines. Namely, in accordance with its Article 8 entitled “In situ Conservation,” each party is expected to develop or maintain the necessary legislation and/or other regulatory provisions for the protection of threatened species and populations. A similar provision, which refers particularly to the protection of wetland from IAS, could be included in the text of the Ramsar Convention.

As IAS can cause serious devastation of wetlands and reactions of relevant state institutions to this environmental issue are generally poor and insufficient, it seems that implementation of the Ramsar Convention on a national level, at least in the region of Southern Pannonia, would be significantly improved if it contained a separate article dedicated to their suppression. In that context, another article of the CBD, Article 8 (h), could be considered as a role model. It obliges each Contracting Party to “prevent the introduction of, control or eradicate those alien species which threaten ecosystems, habitats or species,” as far as it is possible and appropriate. Expanding the contents of the Ramsar Convention by adding an article similar to the Article 8 (h) of the CBD represents just one of the ways to improve its implementation. Other approaches to this issue could also be considered. This should be interpreted as a theoretical proposal, practical execution of which would require both further academic discussion as well as some legislative and administrative measures at national and international levels. Moreover, the implementation and monitoring of such provision should be carried out in a manner similar to the one that is applied to Article 8 (h) of the CBD. The best way to achieve this would be to conduct research on how application of Article 8 (h) is carried out in countries that have signed the CBD and to choose the model that is shown to be the most efficient. This could be done on the basis of analysis of periodical reports submitted by countries that have signed the CBD. Adding an article similar to Article 8 of the CBD to the Ramsar Convention would not conflict with any attempt to strengthen its enforcement in EU member states through the

provisions of so called “soft law.” Actually, it seems logical that the final outcome of these two parallel approaches would be positive. EU soft law comprises “rules of conduct that are laid down in instruments which have not been attributed legally binding force as such, but nevertheless may have certain indirect legal effects, and that are aimed at and may produce practical effects” (Senden 2004). Thus, it seems logical that the instruments of soft law could only strengthen and improve implementation and monitoring of the application of an article similar to Article 8 of the CBD and facilitate its practical application in each EU member state. This particularly refers to documents, already mentioned in this paper, such as the EU biodiversity strategy to 2020 and the EU Action Plan for biodiversity that contain provisions referring to wetlands and their protection. Namely, the commitments made in the form of soft law provisions have proved sometimes to be as effective as law and that soft law norms may harden by being frequently incorporated into subsequent treaties or becoming customary international law as a consequence of state practice. Also, within states, the norms contained in non-binding instruments may provide a model for domestic legislation. This does not refer only to EU soft law but to soft law in general, as a source of international law (Shelton 2009).

Accordingly, the Parties would be encouraged to include in their national legal systems appropriate legal provisions, including the incrimination of unacceptable treatment of wetlands as criminal or administrative offenses, as it has been widely acknowledged that strengthening the legislative framework would enhance the effectiveness of protection, particularly important for wetlands. However, the standpoint that refers to British wetlands, according to which “this would be most effectively achieved through coordinated implementation of existing powers and duties rather than new legislation” (Everard 1997), could also be applied not only in the region of Southern Pannonia, but worldwide as well. For example, The European Strategy on IAS suggests that “specific measures and policies should be developed in order to prevent or control invasions of alien species in wetlands whose ecological character may be threatened by these species” (Genovesi and Shine 2003). Moreover, enforced removal of IAS colonizing a wetland to restore its ecological integrity is suggested by the Millennium Ecosystem Assessment Conceptual Framework (Alcamo et al. 2003) as one of the interventions with a direct driver of change that can contribute to wise use of wetlands (Bridgewater 2008). Being aware of the risk that member states of the Ramsar Convention might still fail to apply its provisions that are not legally binding but solely of an instructive and advisory character, it seems that the most acceptable solution would be the alteration of its present text by adding articles that oblige individual states to incriminate violations of the Convention, either as criminal offenses or as misdemeanors, in their national legal sources. Therefore, incriminating unacceptable human behaviors against the environment—in this case the failure to prevent an occurrence and eliminate the IAS in wetlands as natural and semi-natural habitats as criminal offenses—should be considered as a solution.

In its Article 11, Paragraph 2 b, the Convention on the Conservation of European Wildlife and Natural Habitats (1979) obliges each Contracting Party to undertake the necessary measures to strictly control the introduction of non-native species. It is one of the few international instruments containing specific technical references for addressing IAS, including the adoption of recommendations on general IAS issues and specific problems, production of technical reports, organization of workshops and establishment of an IAS experts’ group. Because of the specific features of IAS that inhabit wetlands and the seriousness of the harm they cause to these fragile ecosystems, introducing a similar provision into the Ramsar Convention should be taken into consideration.

Apart from making improvements and alterations to both national and international legal sources, additional ways to improve implementation of the Ramsar Convention in the context of IAS expansion might also be possible. These would comprise a more efficient monitoring system conducted by trained experts for early detection and eradication of IAS. Such a system would be based upon close cooperation and regular exchange of information between all countries of this region, especially if a wetland or a water system connected to it extends over the territories of more than one of them, as mentioned in Article 5 of the Ramsar Convention. In addition, it should be mandatory to qualify and quantify the status of IAS when applying for a Ramsar site. The status of IAS in the nominated Ramsar site should be taken into consideration as one of the important criteria for placement on the Ramsar List. Also, states should be obliged to contribute an action plan for monitoring and control for each Ramsar site, which would prepare them to detect and suppress IAS more rapidly and efficiently. Furthermore, the focus should be on raising the consciousness of experts in the field of environmental, administrative and criminal law, managers and guards, representatives of the educational system and the media and of the general population on the vital role that wetlands play in the sustainable development of communities (Keddy 2010).

Because the number of introduced species is proportional to tourist visits in terrestrial ecosystems (Wonham 2006) and listed Ramsar areas are attractive tourist destinations, the risk of occurrence and expansion of new IAS increases. These statements suggest that environmental and legal protection should be approached more cautiously and responsibly in the decision-making process. The precautions that should be taken in the management of wetlands ought to be determined on the basis of the results of empiric research on the relationship between natural resources and their local users. This refers to the vital value of wetlands for the environment, economy and human welfare protection and conservation, which are important for local and regional development. Local people should be involved in conservation projects of wetlands and also in the tourism sector as hosts and holders of traditional values. They can significantly contribute to the conservation and sustainable use of wetlands.

As the results of conservation biology must be used in the process of defining the appropriate criteria and strategies for biodiversity protection (Brennan and Withgott 2005), it is clear that these issues must be approached and addressed in a multidisciplinary manner, which is exactly what we want to contribute to and achieve.

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