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Managing Invasive Alien Species by the European Union: Lessons Learnt

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Abstract

The contribution concentrates on the fight against invasive alien species within the European Union (EU), which groups 27 States. In 2014, the EU adopted a regulation to identify and manage invasive alien species. This regulation and its monitoring are discussed in detail, in order to see, what lessons can be learnt from the cooperation and concertation of the different states.

Keywords: invasive alien species, European Union, regulation 1143/2014, management of IAS

1. Introduction

The qualification of some wildlife species as “invasive alien species” [1] is a man-made qualification and thus necessarily arbitrary. Indeed, how species expand in the wild should not, one is inclined to think, be determined by humans, but should be left to the natural evolution of biological diversity. However, a closer look into the problem shows that species which entered new ecosystems could have very negative impacts on their new environment. Examples are the Nile perch (*Lates niloticum*) which was introduced into Lake Victoria in the 19th century and caused the extinction of some 200 indigenous fish species; the coulerpa seaweed (*Coulerpa taxifolia*) invaded the Mediterranean and severely damaged the indigenous aquatic flora and fauna; the introduction of the Polynesian rat into Easter Island is thought to have contributed to the deforestation of that island, with severe consequences for the human populations, etc.

In view of the potential problems caused by invasive species, measures were taken at national and later at international level to stop the further expansion of species outside their natural range. At international level, the Convention on Biological Diversity of 1992 (CBD) asked the Contracting Parties to take measures, in order to “prevent the introduction of, control or eradication of those alien species which threaten ecosystems, habitats or species” [2]. The Aichi Targets of 2010, adopted under the auspices of the CBD, formulated in a similar way [3].

The European Union (EU), which had adhered to the CBD in 1993, adopted a strategy on biodiversity in 2011, which took over the Aichi Target 9 almost word by word [4]. Subsequently, EU Regulation 1143/2014 on invasive alien species was adopted which introduced, for the first time, EU-wide provisions on the fight against invasive alien species (IAS) [5].

More than six years after the adoption of this Regulation it might be time to discuss its merits and weaknesses and examine, whether amendments of the legal provisions at EU level are appropriate. This contribution will thus limit itself on questions of EU law and legal policy with regard to the management of IAS. In a first part, the genesis of the Regulation and the subsequent implementation measures will be described, together with the implementation measures which were adopted by the EU Member States. This is followed by the presentation of the implementation of the Regulation by Member States and lessons learnt from this process. A short final remark ends the contribution.

2. The elaboration of regulation 1143/2014

The taking of EU measures on IAS was first decided in the Sixth EU Environment Action Programme of 2002 [6]. Following a number of other Commission communications and external studies on IAS [7] and in particular a very detailed impact assessment of possible EU initiatives on IAS [8], the Commission presented, in 2013, a proposal for a regulation on IAS [9]. The European Parliament [10] and the European Economic and Social Committee [11] only suggested minor amendments, which were easily acceptable to the Council, so that the Regulation could be adopted within thirteen months after its proposal, an unusually short period of time for an EU legislative text.

Regulation 1143/2014 was supplemented by some technical provisions [12] and by the establishment of a list of IAS of Union concern [13]; this list was, up to mid-2020, two times updated [14].

The Commission's impact assessment had identified two main reasons for legislating at EU level: first, the ecological problem: IAS caused considerable economic, social and environmental damage. As the introduction of IAS into the EU had increased, between 1970 and 2007, by 76 per cent [15] and was very likely to further increase, due in particular to increased trade and mobility and the impact of climate change, the costs of combating IAS and reducing damage were also likely to increase; Union action thus became necessary. The second reason which was identified by the impact assessment was the fact that "the policy failure caused by a very fragmented and incoherent policy set up at EU and national levels which allowed the ecological problem to worsen" [16]. Apparently, these reasons were accepted by the EU legislature, the European Parliament and the Council.

3. The content of the IAS legislation

The Regulation 1143/2014, structured in six chapters [17], pursued three main objectives: the coordination between the EU and its Member States, the prevention of IAS to enter or spread within the EU, and the prioritisation and management of measures.

3.1 Coordination

The coordination objective of Regulation 1143/2014 was first of all reached by the very fact of establishing EU-wide legislation on IAS. Indeed, an EU regulation is of general application, binding in its entirety and directly applicable in all Member States [18]. According to the well-established principle of EU law that EU law prevails over national law, all national legislation which contradicted the provisions of Regulation 1143/2014, became inapplicable. This also applied to national legislation, which was adopted after the entry into force of Regulation 1143/2014.

A second important element of coordination was the establishment of a common terminology and language [19]. The Regulation established 17 common definitions, among them the terms “IAS”, “IAS of Union concern”, “IAS of Member State concern”, but also terms such as “introduction”, “eradication” or “widely spread” [20]. In this way, it influenced national, regional and local regulation, administrative practice and also scientific research on IAS.

Article 22 of the Regulation laid down the general obligation of Member States to coordinate their activities in combating IAS, specifying the conditions which would make cooperation and coordination particularly desirable [21]; they may invite the EU Commission to facilitate the cooperation [22]. Furthermore, Member States should make efforts to ensure coordination and cooperation with third countries, where this is appropriate.

These coordination and cooperation objectives were further specified in different other provisions. For example, when a Member States takes emergency measures, in order to react to a new appearance of an IAS, it is obliged to inform the Commission and the other Member States [23]; the implication is that this might lead to joint efforts of different Member States. Problems of only regional concern and IAS which are of concern to one Member State shall again be addressed by coordinated and cooperative action [24]. Action plans for addressing the pathways of introduction and spread of IAS shall preferably be coordinated at the appropriate regional level [25]. Also management measures for IAS that are already widely spread, shall be notified, where appropriate to other Member States which might be concerned. The Regulation strongly favoured coordinated management measures in such cases [26].

Coordination and cooperation was, moreover, favoured by the establishment of a number of bodies which blossom under the Regulation and which are chaired by the Commission. An IAS Committee, consisting of representatives of the 27 Member States, assists the Commission in all questions, such as the establishment of IAS lists or amendments of the Regulation [27]. A scientific forum assembles scientists appointed by the Member States to assist the Commission in scientific questions [28]. An IAS expert group advises at the initiative of the Commission; its composition is largely similar to that of the Committee, though the experts do not represent their State of provenance. Finally, there is a body which assembles about thirty members of stakeholder groups and of public authorities [29].

It is obvious that the numerous meetings of these bodies and other contacts between their members and with the Commission, and the “soft” invitation to cooperate in the different provisions that were mentioned, led to increased exchange and transfer of know-how, cooperation and coordination among the public authorities of the 27 Member States, scientists, NGOs and other stakeholders within the EU, which is further promoted by the obligation to regularly report on the application and enforcement of the Regulation [30], the availability of EU funding to finance pilot and other projects, local eradication or containment methods [31], risk assessments [32], joint scientific research and publications [33], the joint collection of data on IAS [34] or the genesis of other bodies which specifically address IAS problems. All these activities contribute to the joint venture of fighting IAS within the EU, including in those regions, which, in the past, paid less attention to it.

3.2 The species regulated

From the great number of invasive alien species, Regulation 1143/2014 only regulated those which were considered to be “of Union concern”, i.e. species whose adverse impact “required concerted action at Union level” (Article 3). It is true that

also IAS of Member State concern were referred to in the Regulation; however, as Member States were anyway allowed to introduce or maintain more stringent legal requirements at national level than those which were laid down in Regulation 1143/2014 [35], this provision did not have an additional legal value [36].

The EU list of IAS is the core element of the Regulation. By mid-2020, it contained 66 IAS. While the original Commission proposal, to limit the number of IAS of Union concern to 50 species, was not retained, it may be expected that the “comitology” procedure [37] will have as a consequence that the list does not become too long, as this would increase the workload for national authorities; and the Member States are not prevented from becoming active in their territory and also to coordinate with neighbouring countries with regard to species that are not on the EU list, but are of national concern.

In order to be inserted in the list of IAS of Union concern, a species must have undergone a risk assessment and be likely to cause significant damage; this risk assessment includes the implementation costs, the costs of inaction, the cost-effectiveness and socio-economic aspects [38]. It is not necessary that a species is already present in the Union in order to be included in the EU list. The Commission has to propose to the Committee, which was set up under Article 27 of Regulation 1143/2014, the inclusion of a species in the list of Union concern. The Committee decides with qualified majority on the proposal; the final decision is taken by the Commission, which may, though, not go against the opinion of the Committee [39].

For listed species, a number of restrictions concerning the intentional introduction into the EU apply, such as an import, trade or transport ban, the prohibition to keep or release the species or to let it breed. Also the unintentional introduction or spread of the listed species is to be prohibited by Member States [40]. Member States may exceptionally grant permits for research, ex-situ conservation in contained holdings or, for reasons of compelling public interests (including economic interests) and subject to authorisation by the EU Commission, other uses [41]. Restriction measures may also be taken by a Member State regarding a species that is not listed, but should be listed. In such a case, an EU-procedure is initiated, where the Commission decides, whether or not to propose the inclusion of the species in the EU list [42].

Furthermore, the inclusion of an IAS in the list of Union concern obliged the Member States to:

- elaborate action plans on the pathways for unintentional introductions of IAS used and inform the Commission (Article 13);
- instal a surveillance system, in order to prevent the spreading of the IAS (Article 14);
- introduce a border control system (Article 15);
- inform the Commission and the other Member States of the introduction or presence of an IAS, whose presence was previously unknown (Article 16);
- provide for the rapid eradication of the IAS at an early stage of detection, unless one of the exceptions of Article 18 applies and the derogation from the obligation is accepted by the Commission (Articles 17 and 18).

The Regulation provided for limited obligations with regard to IAS which are already widely spread. Member States shall aim to minimise the damage caused by

such IAS and provide for their eradication, control or containment. Their management methods shall be the subject of strict economic (cost) considerations. Member States shall also try to restore damaged ecosystems. It is of particular relevance that it is each Member State which decides, whether an IAS is widely spread and, following, what management measures it will take. The general cooperation and coordination obligations of Article 22 also applies to the management measures concerning the widely spread IAS.

3.3 Transparency and public participation

The transparency requirements of Regulation 1143/2014 and in particular its monitoring by the Commission are not optimal. It is not known, what proposals the Commission submits to the Committee which was set up under Article 27 and what arguments are used by which Committee member to accept or refuse the proposal for a new IAS to be inserted in the list of Union concern. The names of the members of the scientific forum, established under Article 28, are not made public [43]. Minutes of committee meetings are not published. And the composition of the stakeholder body which groups individual experts, NGOs, economic operators and public authorities and which advises the Commission, is not either known.

The EU Member States had to inform the Commission of their national legislation concerning penalties, in particular for not complying with the restrictions under Article 7 of the Regulation. The Commission does not publicly make available the national legislation. It only mentioned, at a hidden place, that some Member States had not aligned their legislation to the requirements of the Regulation [44].

Member States were also obliged to inform the Commission and other Member States concerned of the detection of an IAS that was previously unknown in their territory; however, some Member States had not notified the Commission of the eradication measures, which they were obliged to take with regard to such early detected species (Article 17) [45]. If and what measures the Commission took to enforce these and all other existing legal obligations, is not known.

The Member States' reports concerning the implementation of Article 24 [46] - all Member States reported, with the exception of Portugal - are available on the internet [47], the same as information on recent detections of IAS species (Article 16) [48].

Article 26 of the Regulation obliged Member States to let the public participate in the elaboration of action plans for the unintentional introduction of IAS (Article 13) and the management measures undertaken according to Article 19. No obligation exists for the Commission to let the public participate in the elaboration of measures to insert new species of Union concern in the common list.

4. The results

4.1 The Union list of IAS

The most important result of Regulation 1143/2014 is the establishment of a list of IAS of Union concern. Before the establishment of that list, only some Member States had national lists of IAS and these lists were in no way aligned, concerted or otherwise adapted to specific biogeographical regions. The Union list obliges Member States now to report on management measures to prevent the introduction and spread of each of the listed IAS and to report on the results of such measures. While the Regulation allows Member States to abstain from taking management measures with the argument that a specific IAS is widely spread and management

measures would be too costly, the Member States are under a certain control by their citizens and the scientific community, which might contest or correct such reasoning.

A closer look at the national reports on the implementation of the Regulation - the Commission will report on its implementation by mid-2021 at the earliest - reveals that Member States did not always pay great attention to answer the questions, which the Commission had asked in Regulation 2017/1454 [49]. Also, the Commission itself doubted in several cases, whether the poor data availability had not led Member States to report that an IAS was not present in their territory [50]. In particular the impact of management measures on non-targeted species was hardly ever assessed and commented. Moreover, the question whether the management measure had led to an eradication, a population decrease or increase, or whether the IAS population remained stable or the population trend was unclear, is rather general and allowed answers (“unclear”), which were not always based on thorough assessment.

The list of, until now, 66 IAS of Union concern shall be regularly updated, but it will certainly not be possible - and perhaps not even desirable - to increase the number of IAS of Union concern to 900, a figure which was mentioned in scientific publications as necessary [51]. Such a scientific request overlooks the fact that Regulation 1143/2014 explicitly included considerations of cost-effectiveness and the capacity of the national and regional authorities to take effective management measures to combat IAS. It should not be forgotten that no Member State is prevented from taking measures also with regard to IAS which are not on the EU list.

4.2 The early detection of IAS

The prevention of the introduction of IAS into the EU environment is another important objective of the Regulation. Between 2016 and June 2020, Member States notified to the Commission under Article 16 the early detection of - without UK data - 84 IAS of Union concern, concerning 26 different species [52]. Most notifications came from Germany, followed by Netherlands and Ireland [53]. The presence of IAS Asian hornet (*Vespa velutina nigrithorax*), Ruddy duck (*Oxyura jamaicensis*) and Muntiacus deer (*Muntiacus reevesi*) was most frequently notified [54]. In 34 cases, the Member States indicated that the IAS had been eradicated; in 36 cases the eradication was ongoing and in 14 cases, the IAS was not eradicated. No data are known on the result of border controls or other means to stop the intentional introduction of IAS into the EU environment.

4.3 Widely spread species

The results with regard to IAS which are widely spread, are much less clear. As mentioned, Member States decide on the cost-effectiveness of measures and thus, whether measures should be taken at all. They do not have to explain their decisions. This leads to the situation that for example, Greece, Cyprus, Romania and Bulgaria reported that between 2015 and 2018, they did not undertake one single management action to eradicate, control or contain IAS in their respective territories [55].

Member States had to report, under Article 24 of the Regulation, on the 49 IAS of the EU list and its first updating. They reported on the presence of, overall, 43 IAS [56]. The eleven IAS which were present in the greatest number of Member States were seven animals and four plants, namely Common milkwood (*Asclepias*

syriaca) with 23 notifications; Himalayan balsam, 22, (*Impatiens glandulifera*); Muskrat, 22, (*Ondatra zibethicum*); Slider turtle, 22, (*Trachemys scripta*); Signal crayfish, 21, (*Pacifastacus leniusculus*); Giant hogweed, 21, (*Heracleum mantegazzianum*); Nuttall's waterweed, 19, (*Elodea nuttallii*); Egyptian goose, 17, (*Alopochen aegyptiaca*); Spiny-cheek crayfish, 17, (*Orconectes limosus*); Stone moroko, 16, (*Pseudorasbora parva*); and Chinese mitten crab, 16, (*Erocheir sinensis*).

The following table indicates details of the national reports. It must be stressed that the results of the different measures (columns 4 to 8) are not comparable. Indeed, some Member States, such as Sweden or France, reported on measures with regard to individual populations. Other Member States, such as Slovenia or Netherlands, resumed the different measures in one single national figure. For example, Slovenia reported that a specific IAS had been eradicated in 16 places and that eradication was ongoing in seven more places; yet, the report only signalled one “decreasing number” (Table 1).

Member state	Number of IAS present	IAS subject of measures	Result: eradicated	Result: increasing	Result: stable	Result: decreasing	Result: uncertain
Belgium	31	23	1	6	3	2	3
Bulgaria	12	—	—	—	—	—	—
Cyprus	3	—	—	—	—	—	—
Czechia	14	1	—	—	—	1	—
Croatia	18	1	—	—	—	1	—
Denmark	14	2	—	—	—	1	1
Estonia	12	8	—	1	1	3	3
Finland	10	8	2	1	1	2	2
France	34	20	5	9	11	30	23
Germany	26	18	5	15	5	6	51
Hungary	26	8	—	3	3	2	—
Ireland	14	6	1	1	—	3	3
Italy	31	21	1	7	10	17	44
Lithuania	9	5	—	—	—	—	5
Luxemburg	10	6	—	1	—	7	1
Malta	5	2	—	1	1	1	—
Netherlands	29	23	1	1	4	3	16
Poland	16	5	—	—	—	3	8
Austria	22	12	—	—	—	—	12
Romania	13	—	—	—	—	—	—
Slovakia	15	6	—	—	—	—	30
Slovenia	12	10	—	1	1	3	7
Spain	28	19	1	9	6	1	3
Sweden	12	10	20	—	3	15	44
Total			37	56	49	101	256

Table 1. Invasive alien species in EU member states, according to the member states' reports to the European Commission.

5. Management lessons learnt

The adoption of Regulation 1143/2014 and in particular of a common list of IAS of Union concern undoubtedly increased the active fight of Member States against IAS, also, because only a minority had national IAS lists [57]. The obligation to notify the Commission of early detected IAS and of the measures taken to eradicate them apparently stimulated national authorities to take active measures to prevent the spreading of such IAS. This may be evidenced by the numerous measures against the Asian hornet, the Ruddy duck or the Coypus (*Myocastor coypus*) which rank high on the notification list under Article 16 of the Regulation [58], but are not particularly far spread in the EU.

Cooperation and concertation of Member States under Regulation 1143/2014 has its limits, though. A species which is not spread in many Member States, may be of very high relevance in individual countries and require action at that level; examples are the Red swamp crayfish (*Procambarus clarkii*) in Spain and the Sosnowsky's hogweed (*Heracleum sosnowskyi*) in Poland [59]. Hopes to improve the cooperation among Member States should therefore not be too high: even within individual Member States, cooperation is not always perfect; this applies in particular, but not only, to regionalised countries, such as Belgium, Germany, France. For this reason, it would only in exceptional cases make sense to agree EU-wide concerted actions regarding specific species, all the more as only seven Member States host more than half of IAS of Union concern [60]. More sense would be regional cooperation in appropriate cases, for example to prevent the spread of the Raccoon (*Procyon lutor*).

These findings contradict the reason for listing an IAS on the Union list, because a species of "Union concern" is defined as a species which "requires concerted action at Union level". The national reports do not give the impression that any such concerted action has taken place until now, though it might be too early to draw final conclusions at this stage: concertation is a process and Member States might have to get accustomed to cooperate beyond the national borders. However, it seems unlikely that without strong EU Commission initiatives in this regard - including the (co-)financing of eradication measures - concerted actions by several - not to talk of all - Member States will blossom.

The differentiation between eradication, control and containment for widely spread IAS did not show significant results. When action was taken, this was mostly done in order to eradicate a species, though success was limited, as evidenced by the small number of eradication successes and the great number of uncertain results in the table above.

The action programmes on pathways for IAS introduction (Article 13) were not referred to in the national reports, as they had to be established only by mid-2019. They will thus not be commented in this contribution.

The reports on the cost of the national measures often give the impression that the Member States do not know themselves the amount of cost of the measures, also because such costs form part of the normal work of the responsible staff at local, regional or national level, and no specific, ear-marked sums were made available to fight IAS. It does not seem possible to draw convincing conclusions on the amount of money which was spent to fight IAS.

The involvement of the public was insufficient. It is not clear, whether the authors of Regulation 1143/2014 had in mind that specific local, regional or national projects of the type of LIFE-projects would be decided to fight this or that IAS, and specific sums would be made available. In such a case, public participation is useful and may bring added value. However, the national implementation reports normally show that most countries did not make specific arrangements to fight IAS in

general or a specific species, but that “business as usual” continued. The reports thus indicated only in general terms, how the public was informed of measures, plans or projects in the fight against IAS. Information of the public requires an information at local or regional level, where measures against IAS are taken, in order to gain the support of the population. This also requires that the language on IAS regulations, plans and measures gets away from exclusively using the Latin name of the species and refers to the species’ name in the local language. The same is true for public participation: there is need to show, what damage is caused by the IAS and what citizens can do to improve the situation, by actively assisting in the early detection of new IAS and in the fight against widely spread IAS. As on all this, Regulation 1143/2014 was too general, the reaction of Member States also remained general.

Apparently, the Commission intends to regularly update - increase - the number of IAS of Union concern. To the extent that this will increase the workload of the local etc. authorities which deal with IAS problems, it is not likely to lead to better results in fighting IAS [61]. It might be more promising to seek concertation of the different Member States concerned, in order to eradicate for example, the five most invasive species of Union concern and make EU-funds available for this. This might be followed by a second plan of the same kind, etc. Only after the successful implementation of several such projects should there be new IAS of Union concern agreed.

6. Final remark

There is consensus that IAS of Union concern require action at Union level. However, the initiative of taking such action at Union level must come from the EU institutions [62]. The invitation to cooperate and concert actions between Member States (Article 22) was a flop. Member States continued their national, regional or local activities with regard to IAS as before. Initiatives by the EU will have to make EU funding available in order to bring an added value to the fight against IAS.

The main message is that in order to reach results, within the EU or at international level, close cooperation between neighbouring countries is necessary. It is not sufficient to leave the implementation and effective application of international agreements or of EU legislation to the goodwill of the countries concerned. The Conference of the Parties to the CBD as well as the European Commission will therefore have to do more to ensure an effective application of the existing provisions.

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References

- [1] See IUCN: "Invasive alien species are species that are introduced, accidentally or voluntarily, outside of their natural geographic range and become problematic", iucn.org/theme/species/our-work/invasive-species (accessed 29-9-2020).
- [2] Convention on Biological Diversity, Article 8(h).
- [3] CBD, Aichi Target no.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".
- [4] EU Commission, COM (2011) 244: "Our life insurance, our natural capital: an EU biodiversity strategy to 2020", Target 5: "By 2020, invasive alien species and their pathways are identified and prioritized, priority species are controlled or eradicated, and pathway are managed, to prevent the introduction and establishment of new IAS".
- [5] Regulation (EU) No 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species, EU Official Journal (OJ) 2014, L 317, p.35.
- [6] Decision 1600/2002 laying down the Sixth Community Environment Action Programme, OJ 2002, L 242 p.1, Article 6(2)(a): "(The Community will develop) measures aimed at the prevention and control of invasive alien species and alien genotypes".
- [7] See in particular M. Kettunen - P. Genovesi - S. Gollasch- S.Pagad - U.Starfinger - P. Ten Brink - C. Shine: Technical support to EU strategy on invasive alien species (IAS) - assessment of the impacts of IAS in Europe and the EU. Institute for European Environmental Policy. Bruxelles 2009. This study estimated the annual damage caused by IAS in the EU at about 12 billion euro.
- [8] Commission Staff Working Document, Impact assessment, SWD (2013) 321.
- [9] Commission, COM (2013) 620.
- [10] European Parliament, Position on the Commission proposal for a regulation on IAS of 16 April 2014, Document TC1_COD(2013) 6307. The most important amendments suggested by the Parliament were the fixing of a deadline for the establishment of a list on IAS of EU concern; the inclusion of animal welfare considerations in the text; the deletion of limiting the future EU list of IAS to 50 species; and specific provisions for species that were IAS in some, but considered indigenous in other Member States.
- [11] European Economic and Social Committee, Opinion of 11 June 2014, OJ 2014, C 177, p.84. The EU Committee of the Regions did not issue an Opinion.
- [12] Commission Delegated Regulation 2018/698 with regard to risk assessments in relation to invasive alien species, OJ 2018, L 174, p.5; Commission Implementing Regulation 2016/145 adopting the format of the document serving as evidence for the permit issued by the competent authorities of the Member States allowing establishments to carry out certain activities pursuant to Regulation 1143/2014, OJ 2016, L 30, p.1; Commission Implementing Regulation 2017/1454 specifying the technical formats for reporting by the Member States pursuant to Regulation 1143/2014, OJ 2017, L 208, p.15. See generally on the implementing powers of the Commission under Regulation 1143/2014 (fn.5) Recital 31 of that Regulation.

[13] Commission Implementing Regulation 2016/1141, OJ 2016, L 189, p.4; the list contained 37 IAS species.

[14] Commission Implementing Regulation 2017/1263, OJ 2017, L 182, p.37; the list contained 12 IAS species. Commission Implementing Regulation 2019/1262, OJ 2019, L 199, p.1; the list contained 17 IAS species.

[15] Commission, SWD (2013) 321 (fn.8), p.18.

[16] Commission, SWD (2013) 321(fn.8), p.7.

[17] The six chapters are: I. General provisions (Articles 1 to 6); II. Prevention (Articles 7 to 13); III. Early detection and rapid eradication (Articles 14 to 18); IV. Management of IAS that are widely spread (Articles 19 to 20); V. Horizontal provisions (Articles 21 to 23); VI. Final provisions (Articles 24 to 33). 38 Recitals explain, justify and comment the different articles.

[18] Treaty on the Functioning of the European Union, Article 288.

[19] See on the situation prior to 2014 for example J. Vandekerckhove - A.C. Cardoso: Online information systems with alien species occurrence records in Europe; coverage, complementarity and compatibility. European Commission, Joint Research Centre. Luxemburg 2011.

[20] See the definitions in Article 3 of Regulation 1143/2014 (fn.5).

[21] Regulation 1143/2014 (fn.5), Article 22 mentions situations, where Member States share the same maritime sub-region, the same biogeographical region, share borders or river basins or have other "common concerns".

[22] This provision does not exclude, though, Commission's initiatives to ensure cooperation without a formal invitation.

[23] Regulation 1143/2014 (fn.5), Article 10.

[24] *Ibidem*, Articles 11 and 12.

[25] *Ibidem*, Article 12(3).

[26] *Ibidem*, Article 19(5).

[27] *Ibidem*, Article 27.

[28] *Ibidem*, Article 28.

[29] See for the last two groups Commission, ec.europa.eu/environment/nature/invasivealien/index_en.htm (consulted 5-6-2020).

[30] Under the Regulation, Member States shall report to the Commission on the taking of emergency measures (Article 10), the establishment of a list of IAS of Member State concern (Article 11), their action plans for pathways (Article 13(5)), the early detection of IAS (Article 16), the measures taken to combat early detected IAS (Article 17(1) and(4)), decisions not to apply rapid eradication measures (Article 18), the adoption of more stringent measures (Article 23), a detailed implementation report (Article 24) and their system of sanctions (Article 30).

[31] The EU LIFE programme (Regulation 1293/2013 on the establishment of a Programme for the Environment and Climate Action (LIFE), OJ 2013, L 347, p.185) financed, between 1992 and 2018, 123 projects on IAS, see ec.europa.eu/environment/life/project/Project/index.cfm?fuseaction=home.search&fid=16274911&cftoken=79af2267Sc8e9601-2E4B7050-B0B1-8670-42776375BD162288 (consulted 5-6-2020). 33 of these projects were financed in Italy, 28 in Spain, 12 in the United Kingdom, 11 in Portugal and 9 in France.

[32] According to Article 4(3)(d) of Regulation 1143/2014 (fn.5), a species

must be the subject of a risk assessment, before it can be inserted into the list of IAS of Union concern. These risk assessments must be realised by the Commission, eventually also by a Member State (Article 4(4)b)). For details of the risk assessment see Articles 5 of Regulation 1143/2014 and Regulation 2018/698 (fn.12). Particular importance is attached to the necessity of the risk assessment's compliance with the rules of the World Trade Organisation (Recitals 11 and 13 to Regulation 1143/2014).

[33] See K. Tsiamis a.o.: Baseline distribution of invasive alien species of Union concern. European Commission, Joint Research Centre, Luxemburg 2017 (Tsiamis 2017); K.Tsiamis - E.Gervasini a.o.: Baseline distribution of species listed in the 1st update of IAS of Union concern. Luxemburg 2019 . These publications cover 49 of the 66 IAS of Union concern.

[34] See in particular the European Alien Species Information Network (EASIN), launched by the EU Commission, Joint Research System; S. Katsanevakis a.o: EASIN: supporting European policy and scientific research. Management of Biological Invasions 2015, p.147.

[35] See Article 193 of the Treaty on the Functioning of the European Union and Regulation 1143/2014 (fn.1), Article 23.

[36] For their outermost regions, though, Member States were obliged to establish IAS lists of concern for those regions, Article 6 of Regulation 1143/2014. These outermost regions, which are part of the EU, are Martinique, Mayotte, Guadeloupe, French Guiana, Réunion (France), Azores, Madeira (Portugal) and the Canary Islands (Spain).

[37] Regulation 1143/2014 (fn.5), Articles 4(1) and 27.

[38] *Ibidem*, Article 4(6).

[39] See for details Regulation 1143/2014 (fn.5) Article 27 and Regulation 182/2011,OJ 2011, L 55, p.13.

[40] See for details Regulation 1143/2014 (fn.5), Article 7.

[41] *Ibidem*, Articles 8 and 9. Transitional provisions were foreseen for non-commercial owners of IAS (Article 31) and on the liquidation of commercial stocks of IAS (Article 32)

[42] *Ibidem*, Article 10.

[43] On request of the European Ombudsman, scientific experts have now to be registered in the EU transparency register. However, this does not yet help with regard to the composition of the scientific expert group. Even data protection reasons do not justify that the names of the experts are not made public.

[44] Commission, Environmental Implementation Review 2019, COM (2019) 149, p.6. The Member States in question were Austria, Belgium, Cyprus, Greece, Ireland, Portugal, Romania, Slovakia, Sweden and the United Kingdom.

[45] *Ibidem*. The Member States concerned were Czechia, Denmark, Germany, Greece, France, Hungary, Portugal and Spain.

[46] According to Article 24, Member States have to report on their surveillance system (Article 14), their control system (Article 15), the distribution of IAS in their territory, IAS of Member State concern, their action plans (Article 13), management measures (Articles 17 and 19) and their effectiveness, permits that were issued, information of the public, and, "if available", cost of the measures.

[47] Commission, rod.eionet.europa.eu/obligations/727/deliveries (consulted

9-6-2020). The report from Latvia was not accessible, though. The reports follow the orientation of Commission Regulation 2017/1454 (fn.8). As the United Kingdom left the EU, data on that country are not included in the following lines.

[48] Commission, easin.jrc.ec.europa.eu/notsys/PUB/search/GetResults (consulted 9-6-2020).

[49] Regulation 2017/1454 (fn.12).

[50] Commission, SWD (2019) 112 to 139, doubted, whether the reports from Bulgaria, Hungary, Romania and Denmark were not influenced by poor data availability. To these, certainly the Lithuanian report has to be added, which indicates with regard to a ten IAS of Union concern that it was "unknown", whether these species existed in the national territory. The report for Greece even indicated that with regard to 43 IAS it is "currently unknown", whether the IAS exists in the national territory. See for both countries rod.eionet.europa.eu/obligations/727/deliveries (Lithuania, Greece) (consulted 10-6-2020).

[51] See C. Carboneras a.o.: A prioritised list of invasive alien species to assist the effective implementation of EU legislation. *Journal of Applied Ecology* 2018, p.539.

[52] Commission, notsys (fn.48).

[53] *Ibidem*. In detail: Germany 29 notifications, Netherlands 12, Ireland 8, Luxemburg 6, Spain 5, Belgium 5, Denmark 3, Slovenia 3, Croatia 3, Sweden 2, Italy 2, Austria 1, Czechia 1, Portugal 1, Hungary 1 and France 1. Some notifications concerned several populations. However, some Member State apparently adopted eradication measures on the basis of Article 17, without notifying the Commission, see for example the annual reports from

Denmark (9 eradication measures) and France (4 eradication measures), Commission, rod.eionet.europa.eu/obligations/727/deliveries (Denmark, France) (consulted 10-6-2020).

[54] The notifications concerned: *Vespa velutina nigrithorax* (14 notifications); *Oxyura jamaicensis* (10); *Muntiacus reevesi* (8); *Myocastor coypus* (6); *Threskiornis aethiopicus* (5); *Cabomba carolina* (4); *Procyon lotor* (4); *Nasua nasua* (3); *Ludwigia peploides* (3); *Procambarus fallax* (3); *Pueraria montana* (2); *Eichhornia crassipes* (2); *Lagarosiphon major* (2); *Persicaria perfoliata* (2); *Procambarus clarkii* (2); *Tamias sibiricus* (1); *Corvus splendens* (1); *Sciurus carolinensis* (1); *Hydrocotyle ranunculoides* (1); *Lysichiton americanus* (1); *Lithobates catesbeianus* (1); *Alopochen aegyptianus* (1); *Gymnocroronis spilanthoides* (1); *Myriophyllum heterophyllum* (1).

[55] Greece reported that 6 of the 49 IAS were present in its territory, Bulgaria 12, Romania 13 and Cyprus 3 IAS (see the reports fn.48).

[56] No presence was signalled of *Corvus splendens*, *Microstegium viminicum*, *Nyctereutes procyonoides*, *Parthenium hysterophorus*, *Persicaria perfoliata* and *Sciurus niger*. Where a Member State reported that it did not know, whether a species was present in its territory, the species was counted as not present.

[57] National lists of IAS exist in Croatia, Denmark, Estonia, France, Ireland, Lithuania, Poland, Slovakia and Spain, see Commission (fn.48), national reports.

[58] See fn.55. The presence of the Asian hornet was signaled by four Member States, that of the Ruddy duck by 12 and of Coypus by 15 Member States.

[59] See Tsiamis a.o. 2017, (fn.33), p.31 and p.49.

[60] The countries are Belgium, France, Germany, Hungary, Italy, Netherlands and Spain. Furthermore, 13 countries adopted measures with regard to less than half of the IAS of Union concern present in their territory, and 28 of the 43 IAS of Union concern, on which Member States reported, were subject to measures in less than half of the Member States; see table above.

[61] This might be different for aquatic animal IAS, which, until now, were not particularly addressed by the EU. Indeed, the authorities dealing with nature conservation (including fighting IAS) and water protection are separated in most Member States. Aquatic IAS of Union concern would therefore have to be managed by different administrations.

[62] Such Union action will have to include non-EU countries such as Switzerland, Norway, Liechtenstein and the United Kingdom.