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INVASION NOTE

EU adopts innovative legislation on invasive species: a step towards a global response to biological invasions?

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Abstract Europe has adopted innovative legislation on invasive species that could signal a step-change in the global response to biological invasion threats. The discussion that took place within EU institutions—EU Parliament, European Commission, and the Member States—permitted significant improvement on the initial proposal presented by the European Commission, including removing the initial 50 species cap, explicitly allowing national authorities to take stringent measures on invasive species of national concern, and encouraging coordinated approaches to invasive species in boundary areas. An independent "Scientific Forum" to inform implementation has been introduced, and the EU Regulation will permit only limited licensing for specific activities using invasive alien species. However, the real strength of the legislation will largely depend on the decisions of a committee of representatives of the Member States, with the risk that the real enforcement will be limited by political and economic, rather than scientific, considerations. In this regard it will be crucial to set up a framework of roles and responsibilities among the different bodies that ensure transparent and objective decision processes. Also, it will be essential that adequate resources be secured for implementing the provisions of the legislation. Finally, the regulatory approach introduced by the Regulation will have only a limited impact unless European citizens raise their awareness of this threat and adopt more responsible behaviours.

Keywords Polluter-pays · Ecological impacts · Pathways of introduction · Invasive alien species · Policy · Prevention · Risk assessment

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Introduction

The European Union has adopted legislation on a primary global driver of biodiversity loss. Ten years after adoption of a non-binding European Strategy on Invasive Alien Species (Genovesi and Shine 2004), and 6 years after its first formal commitment to adopt a policy on the issue (EC 2008), the EU has agreed a legislative text that was adopted on April 16th 2014 by

the European Parliament with a large majority (606–36, with 4 abstentions) and by the European Council in September 29th of the same year without substantial changes. The text, published in the Official Journal of the European Union on November 4th, issue L 317/35, is in the form of an EU Regulation (Regulation 1143/2014), and becomes immediately enforceable law in all Member States on 1st January 2015. Unlike EU Directives, EU Regulations become national law without having to be transposed.

The initial draft of this legislation, published in September 2013, drew a good deal of criticism and underwent several changes (Carboneras et al. 2013). Significant among these are: (1) In the adopted regulation the proposed numerical cap of 50 'Invasive Alien Species of Union Concern' has been removed. (2) An independent "Scientific Forum" has been established to provide advice on the scientific aspects related to applying this Regulation, in particular "*..as regards establishing and updating the Union list, risk assessments, emergency measures and rapid eradication measures*." (3) Despite strong pressure from certain industries–notably mink farming–for sweeping derogations to serve economic interests, the new legislation permits limited licensing for specific activities using invasive alien species only in exceptional cases and subject to authorisation by the European Commission.

The Regulation, which is the first large EU piece of legislation on biodiversity in more than 20 years, reflects much of the guidance and advice provided by the invasion science community, and it follows the hierarchical approach adopted by the Convention on Biological Diversity (with decision VI/23): a priority emphasis on prevention, early warning and rapid response as the best option when prevention fails, eradication as the best management alternative, and long-term control measures as a fall-back option, a strategy that is considered as the most effective way to address this problem by invasion biologists (Simberloff et al. 2013).

The backbone of the legislation is the list of harmful invasive species (a 'black list' approach), namely "Invasive Alien Species of Union Concern," selected only among species that are alien to the EU and that are identified as invasive through a detailed risk assessment. For the species included in this list there will be automatic stringent provisions for preventing introduction into the EU, including a ban of import, trade, possession, breeding, transport, use, and release into the environment. In case of detection of an "Invasive Alien Species of Union Concern," European States will be obliged to immediately attempt eradication whenever feasible. Art. 17 of the Regulation specifies that eradication methods should be effective and avoid possible undesired effects and, for animals of any taxonomic groups, should avoid pain or suffering if possible, thus providing clear guidance on how to balance effectiveness and animal welfare concerns. Member States are also required to set up, within 18 months of adoption of the Regulation, a surveillance system to speed up action in case an Invasive Alien Species of Union Concern is detected.

A key innovation in the new legislation is an obligation of European states to assess the key pathways of introduction of listed species and to develop action plans to prevent new unwanted arrivals by strengthening controls of both intentional and accidental movement of organisms. This is in line with suggestions from the scientific community (Hulme et al. 2008) and the principles of "Aichi" Target 9 of the Strategic Plan 2020 of the Convention on Biological Diversity that call for prioritizing pathways of introduction of invasive species and focusing prevention efforts on these means. The EC Biodiversity Strategy to 2020 also calls for identifying, prioritising and managing pathways to prevent introduction and establishment of new IAS (EC 2011).

Although the Union list is the main focus of the legislation, the provisions go well beyond a single list. In fact, the Regulation also mandates addressing species of national or regional concern, with the possibility that Member States address these species by enforcing in their territory measures similar to those applied at the EU scale for the Union list. The text also encourages coordinated action among countries sharing invasive species. This approach is also meant to address invasive species that are native to part of the EU and that are therefore excluded from the provisions of the Union list (art. 11.3).

The establishment of a Scientific Forum reflects the importance of ensuring the support of an advisory body to decision-making (Hulme et al. 2009), although the role of this body is not clear yet, and its rules of procedure (possibly including a formal mechanism for the forum to provide inputs to the Committee) must be established by the Commission.

On the negative side, provisions on ballast water have been removed, and the final decision on which

invasive species will become part of the Union list–the only ones targeted with stringent measures—are at risk of being driven by policy more than by science.

Even though the 50 species cap has been removed, this list of species of EU concern will likely be rather short, given that species listed need to be approved by the Committee of representatives of the Member States by qualified majority. A preliminary analysis of the candidate risk analysis to be applied to decide on the list has been undertaken by a consortium of experts under a contract issued by the European Commission. The assessment (Roy et al. 2014) has identified the minimum criteria of the risk assessment protocols and also the invasive species for which a risk assessment is already available in Europe. These criteria of the risk assessment protocols have been based on a review of fourteen existing risk assessment protocols, such as those developed by the European and Mediterranean Plant Protection Organisation or the Great Britain Non-Native Species Risk Assessment, integrated with additional information for example on their response to climate change, their impact on ecosystem services, and also on their potential socioeconomic benefits. Although none of the existing risk assessment protocols fully meet the set of minimum standards, a draft EU list of 50 "Invasive Alien Species of Union Concern" was constructed taking into account the risk assessment methods considered to be "substantially compliant" with the criteria for listing. The species included on this provisional list are all alien to Europe and have a high to medium impact on biodiversity and/or human health and the economy. In total, there are 25 plant species, 12 vertebrate species, and 13 invertebrate species. Thirty additional species have risk assessments currently under development, or just performed, and could be included in the list of proposed "IAS of EU concern" when their assessment is complete and validated. The report recommends prioritizing another 46 species for which a sufficiently compliant risk assessment is not currently available.

However, not all those species will be included in the final EU list of invasive alien species, because the proposal by the European Commission can include only species whose risk assessments have been validated, and it must then be submitted for final approval by the Committee.

Since the most stringent provisions of the Regulation will apply only to species on the Union list, the process to adopt the list, and to update it in the future, becomes particularly relevant. The statements of the European Member States during the meeting of the European Council that led to the final adoption of the Regulation (available online at: http://register.consilium.europa.eu/doc/srv?l=EN&f=ST%2013266%202014%20ADD%201) indicate the nature of arguments that may arise in the decision process to produce the EU list. In the discussion, Hungary highlighted that black locust (*Robinia pseudoacacia*)—which has a significant value in the honey production of that country–should not be included in the Union list and should be managed under national legislation. Denmark and Finland, major producers of mink fur—based on the assurances given during the negotiations of the Regulation—expressed their confidence that the American Mink (*Neovison vison*) will not be included in the list. Furthermore, the abstention of Germany has been linked to pressures from the renewable industry in that country, particularly interested in the development of new biofuels.

An additional weak link in the framework set up by the Regulation is resource availability. No specific financing mechanisms have been set, and this has been highlighted as a key gap by European Member States during the discussions that led to the approval of the text. The Regulation includes the possibility that Member States recover the costs of restoration through the polluter-pays principle (Beninde et al. 2014), but the enforcement of this approach appears very challenging, not least because—differently from pollution—the effects of invasions might not be possible to reverse and can grow over time. In some cases the initial release of few individuals can in the long term cause disastrous effects, as in the case of the American Grey squirrel (*Sciurus carolinensis*) in Italy or of *Caulerpa taxifolia* in Monaco (Brunel et al. 2013).

The European Union is a global hub for the movement of people and goods, with the promotion of unhindered trade as its core political function and 28 diverse democracies as its constituency. Its bulk forms part of the planet's largest land-mass, with extended borders crossing diverse biogeographical regions and containing a concentration of the world's busiest airports, trunk-routes, shipping lanes, and harbours. As such, the EU is perhaps the single most challenging place on earth to try to regulate the human movement and release of invasive species. But the transport and establishment rates of invasive species in Europe continue to rise (Butchart et al. 2010), as do their

impacts on biodiversity. We now have, in this new piece of legislation, a long overdue EU policy response, based on science and sound conservation principles. However, it must be stressed that even if fully implemented (which would significantly depend on the commitment of individual Member States and on the availability of adequate resources) this framework cannot alone wholly address the severe and rapidly growing threat of biological invasions. Globally, an increasing number of invasive species legislative instruments, adopted at various scales, has thus far failed to reduce the overall rate of invasions (McGeoch et al. 2010). The European instrument falls far short of biosecurity policies of Australia and New Zealand, widely acknowledged as the most advanced and which have significantly reduced the rate of arrival of invasive species in those territories. Australia has a 'white listing' approach to imports, for example, prohibiting the entry of any organism into Australia, unless it is on an authorised list (Beale et al. 2008). The Australian biosecurity framework, based on a collective effort from the agriculture, forestry, fisheries, and environment sectors, has enjoyed a total budget of $1.6 billion since 2009, and $524.2 m of new funding for the 2012–2013 period. This ambitious biosecurity approach has successfully kept the country free of several highly invasive species such as the Varroa mite—a parasite of bees—and this has saved Australian plant industries alone $21.3–50.3 million/year over 30 years.

Nevertheless, a framework based on a limited 'black list', as in the EU legislation, represents hugely significant progress. The Japan Invasive Alien Species Act, approved in 2004 and based on a list of about 100 invasive species for which there are restrictions on importation, possession, rearing, and release, has managed to decrease the number of imported invasive species by 47.3 % for mammals, 70.8 % for birds, 38 % for reptiles, 84.2 % or amphibians, and 11.5 % for ornamental fish (Goka 2010).

If we are to avoid bequeathing to future Europeans both a degraded environment and an immense financial bill, we must start to achieve similar results. The new legislation is a major step in the right direction, but it will need further political commitment to see it through to legislation, and a sea change in the attitude of the European society, as we have seen in New Zealand and Australia, to support vigorous implementation of the provisions included and to adopt more responsible behaviour with regard to the movement and management of organisms.

One key element in this direction is to raise the awareness of European citizens toward this threat and to achieve public engagement. Public perception of the threats posed by invasive species is notably diverse across the EU. Sixty-six percent of 5101 answers to an online public consultation held by the European Commission in 2012 came from citizens, with a further 32 % from organisations. The responses were geographically concentrated in 6 Member States (notably, UK, Spain, Belgium, Germany and the Netherlands), which accounted for 82 % of the responses, the remainder coming from the other 21 Member States (EC 2013). Thus, the EU institutions and national governments still have a major task to inform European society of the challenges ahead and to engage them in preventing new invasions, particularly in countries where public awareness seems to be alarmingly low.

The involvement of wider society is crucial to develop more responsible behaviours to enable the regulatory approach introduced by the Regulation. One example in this direction is the various codes of conduct developed by the Bern Convention of the Council of Europe in partnership with the IUCN SSC Invasive Species Specialist Group and with key interested groups. These include a Code of Conduct on Horticulture and Invasive Species (Heywood and Brunel 2011), one on Botanical Gardens and Invasive Species (Heywood and Sharrock 2013), one on Hunting and Invasive Species (Monaco et al. 2013; developed with the European Federation of Associations for Hunting), and one on Zoological Gardens, and Aquaria and Invasive Alien Species (Scalera et al. 2012; developed with the European Association of Zoos and Aquaria). The role of key industries in the European economic network to adopt more responsible behaviour with respect to the introduction and use of invasive species is indeed crucially important, and the European Union should encourage such voluntary approaches to this issue.

This is a uniquely human problem, and we must all cooperate to solve it.

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