

# Assessing the Impact of the Habitats Directive: A Case Study of Europe’s Plants

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## ABSTRACT

The Habitats Directive will remain central to the EU’s continuing efforts to halt and ultimately reverse biodiversity loss under its 2030 Strategy for Biodiversity. Understanding the role this Directive plays in protecting European species is, therefore, critical if the EU is to deliver on its ambitious nature conservation agenda. This article presents a new study that furthers our understanding of EU law’s ability to deliver meaningful changes to a species’ conservation status by comparing the status of European plants that are protected under the Habitats Directive with those that are not, using the International Union for Conservation of Nature’s (IUCN) Red List. Its findings suggest that the Directive has had only a limited impact on European flora. The article concludes by proposing reforms that could address the shortcomings in the EU’s approach to conservation which are highlighted by the study.

**KEYWORDS:** biodiversity, conservation, Habitats Directive, IUCN Red List, listing species, plants

## 1. INTRODUCTION

As the next stage in achieving its 2050 Vision for Biodiversity,<sup>1</sup> the EU recently published its 2030 Strategy for Biodiversity.<sup>2</sup> This establishes the milestone of ensuring that ‘Europe’s biodiversity will be on the path to recovery by 2030’.<sup>3</sup> Although ambiguous, this goal has been elaborated through a series of key actions and a related

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- 1 ‘By 2050, European Union biodiversity and the ecosystem services it provides—its natural capital—are protected, valued and appropriately restored for biodiversity’s intrinsic value and for their essential contribution to human wellbeing and economic prosperity, and so that catastrophic changes caused by the loss of biodiversity are avoided’—European Commission, ‘Our Life Insurance, our Natural Capital: an EU Biodiversity Strategy to 2020’ COM (2011) 244, 2.
- 2 European Commission, ‘EU Biodiversity Strategy for 2030: Bringing Nature Back into our Lives’ COM (2020) 380.
- 3 *ibid* 3.

indicative timetable.<sup>4</sup> It does, however, represent a lowering of ambition from the 2020 Strategy,<sup>5</sup> the headline target of which was:

Halting the loss of biodiversity and the degradation of ecosystem services in the EU by 2020, and restoring them in so far as feasible, while stepping up the EU contribution to averting global biodiversity loss.<sup>6</sup>

That the specific objective of halting biodiversity loss has not been carried forward in the 2030 Strategy is perhaps an admission of the scale of the challenges in reversing long-term biodiversity decline. The 2030 Strategy identifies key areas where the EU's approach has, to date, been inadequate. Emphasis is placed, for example, on the need to strengthen the legal framework for ecosystem restoration, and legally binding targets for this will be put forward by the Commission in 2021.<sup>7</sup> Core to the EU's efforts to meet its 2030 milestone, at least initially, however, will be its pre-existing conservation Directives<sup>8</sup>: the Wild Birds Directive<sup>9</sup> and the Habitats Directive.<sup>10</sup> Therefore, it is necessary to understand what impact these Directives are having on Europe's biodiversity and whether reforms are required to ensure that they are capable of delivering on the EU's 2030 and 2050 biodiversity goals. Notwithstanding the Commission's assertion that they have been indispensable in EU efforts to conserve nature,<sup>11</sup> evidence on what these two Directives have contributed in terms of improvements in the status of European biodiversity is mixed. On the one hand, various reports suggest that certain species and habitat types are showing signs of improvement as a result of the protection afforded by the European Directives.<sup>12</sup> On the other hand, data from the 2013 to 2018 reporting period suggest that there has been little change in the overall status of European habitats and

4 *ibid* Annex.

5 This was adopted as the EU's mechanism for implementing the global Strategic Plan for Biodiversity, adopted by parties to the Convention on Biological Diversity, Rio de Janeiro, 5 June 1992, in force 29 December 1993, 31 ILM 822 (1992), in 2010—Decision X/2, The Strategic Plan for Biodiversity 2011–20 and the Aichi Biodiversity Targets, UNEP/CBD/COP/DEC/X/2, 29 October 2010.

6 European Commission, 'Our Life Insurance' (n 1) 2.

7 European Commission, 'EU Biodiversity Strategy for 2030' (n 2) 6.

8 The prospect of the new legislation is raised in the 2030 Strategy if insufficient progress has been made by 2024—*ibid* 5.

9 Directive 2009/147/EC on the conservation of wild birds [2010] OJ L20/7, replacing Directive 79/409/EEC [1979] OJ L103/1.

10 Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora [1992] OJ L206/7.

11 European Commission, 'Fitness Check of the EU Nature Legislation (Birds and Habitats Directives)' SWD (2016) 472, 87–88.

12 See, eg, Karine Princé and others, 'Long-term Effectiveness of Natura 2000 Network to Protect Biodiversity: A Hint of Optimism for Common Birds' (2021) 253 *Biological Conservation* 108871; María Abellán and others, 'Efficiency of a Protected-Area Network in a Mediterranean Region: A Multispecies Assessment with Raptors' (2011) 47 *Environmental Management* 983. Note, however, that there was no single European study on the status of all species and habitats of Community interest completed as part of the adoption or initial implementation of the Directive. There is, therefore, no clear baseline against which progress under the Directive can be tracked—European Commission, *ibid* 15.

species.<sup>13</sup> Similar conclusions were reached for the 2007–12 period,<sup>14</sup> meaning that the EU has overseen a lost decade for its biodiversity in which habitats have not been restored and species' populations have not been recovered.<sup>15</sup>

The Commission's summary assessments of European biodiversity are primarily based on the data provided by the Member States on the status of species and habitats that are covered by the Directives.<sup>16</sup> This is a legitimate measure, but when assessing the effectiveness of the Wild Birds and Habitats Directives in terms of their conservation gains, it is also necessary to compare the status of species and habitats that are protected under EU law with those that are not. It is only through such comparative analyses that the added benefit of the Directives can be properly evaluated. Some research in this direction has already been undertaken. A 2016 study, for example, identified the so-called 'umbrella effect' of the EU's protected areas, with non-target species and habitats doing better within and in areas adjacent to protected sites than those that are further afield.<sup>17</sup> More work is needed, however, to fully understand the extent to which EU law provides a level of protection, and therefore improvement in a target entity's conservation status, beyond that which would be provided by a state's national law (as informed by any rules of international law to which that state has subscribed). To that end, this article presents the findings of a study comparing the status of European plant species that are protected under the Habitats Directive with those that are not, using the IUCN Red List.<sup>18</sup> Its findings offer new insights into the effectiveness of EU conservation law and highlight important areas of reform.<sup>19</sup>

Plants have been chosen as the focus of this study for two reasons. First, plants, more so than animals, are critically important to the health and integrity of natural systems. They are the first link in every food chain and provide essential ecosystem services. If plants are adequately protected, the necessary ecological framework will be in place to support biodiversity as a whole. Secondly, and despite their ecological significance, plants have been neglected in legal scholarship, which has instead

13 European Commission, 'The State of Nature in the European Union: Report on the Status and Trends in 2013–2018 of Species and Habitat Types Protected by the Birds and Habitats Directives' COM (2020) 635.

14 European Commission, 'The State of Nature in the European Union: Report on the Status of and Trends for Habitat Types and Species Covered by the Birds and Habitats Directives for the 2007–2012 Period as Required Under Article 17 of the Habitats Directive and Article 12 of the Birds Directive' COM (2015) 219, 19.

15 The same can also be said of global biodiversity efforts. See Secretariat to the Convention on Biological Diversity, *Global Biodiversity Outlook 5* (Montreal 2020) and Secretariat to the Convention on Biological Diversity, *Global Biodiversity Outlook 3* (Montreal 2010).

16 European Commission, 'Fitness Check' (n 11) 27–29.

17 Theo van der Sluis and others, *How Much Biodiversity is in Natura 2000? The "Umbrella Effect" of the European Natura 2000 Protected Area Network* (Technical Report, Alterra Wageningen 2016).

18 Full methodological notes are provided in pt 3.2 of the article.

19 It is important to recognise that our ability to assess the specific effectiveness of conservation measures is limited by the fact that they do not operate in isolation. Other factors, such as the impact of other national policies, the respective strengths of relevant institutions and local support for particular conservation initiatives, will also affect the conservation status of target species and habitats—Daniela Miteva and others, 'Do Biodiversity Policies Work? The Case for Conservation Evaluation 2.0' in Dieter Helm and Cameron Hepburn (eds), *Nature in the Balance: The Economics of Biodiversity* (OUP 2014).

focussed on animals.<sup>20</sup> This work, therefore, also contributes to our understanding of the extent to which the law is relevant to, and succeeds in, the conservation of plants.

The article begins by evaluating EU conservation law, identifying key issues relevant to the conservation of plants. It then presents the findings of the study into the conservation status of European flora before considering reforms to the design and operation of the Habitats Directive that would strengthen the contribution it makes to the conservation of European biodiversity.

## 2. EU CONSERVATION LAW

The two principal conservation instruments in EU law are the Wild Birds Directive and the Habitats Directive.<sup>21</sup> These have been analysed extensively elsewhere, and so only an appraisal of their salient features is provided here.<sup>22</sup> Adopted in 1979 in response to concerns over the impact that hunting was having on migratory bird populations,<sup>23</sup> the Wild Birds Directive has been considered as a model of ‘good’ environmental legislation.<sup>24</sup> It imposed strict obligations regarding the designation of sites that met certain ecological criteria as Special Protection Areas (SPAs) and their subsequent protection.<sup>25</sup> These were rigorously enforced by the Commission and the Court of Justice of the European Union (CJEU), which ruled as invalid numerous attempts by the Member States to derogate from their conservation obligations for purposes of economic development.<sup>26</sup> Only in situations where there was a risk to human life or health were the Member States permitted to pursue a course of action that would undermine the ecological integrity of a designated site.<sup>27</sup>

The Habitats Directive served to both broaden and reduce the protection provided by the Wild Birds Directive.<sup>28</sup> At its heart is Natura 2000, a network of sites comprising the Wild Birds Directive SPAs and Special Areas of Conservation established under the Habitats Directive for habitat types listed in Annex I of the

20 Rob Amos, *International Conservation Law: The Protection of Plants in Theory and Practice* (Routledge 2020) 4.

21 Other relevant instruments include Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive) [2008] OJ L164/19 and Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage [2004] OJ L143/56.

22 See, *inter alia*, Geoffrey Wandesforde-Smith and Nicholas Watts, ‘Wildlife Conservation and Protected Areas: Politics, Procedure and Performance of Failure under the EU Birds and Habitats Directives’ (2014) 17 *Journal of International Wildlife Law & Policy* 62; Ludwig Krämer, *EU Environmental Law* (7th edn, Sweet and Maxwell 2012) 187–92; Nicolas de Sadeleer, ‘EC Law and Biodiversity’ in Richard Macrory (ed), *Reflections on 30 Years of EU Environmental Law: A High Level of Protection?* (Europa Law Publishing 2006) 361–65; Jane Holder and Maria Lee, *Environmental Protection, Law and Policy* (2nd edn, CUP 2007) 627–67.

23 Holder and Lee, *ibid* 627.

24 Nicolas de Sadeleer, ‘Habitats Conservation in EC Law—From Nature Sanctuaries to Ecological Networks’ (2005) 5 *Yearbook of European Environmental Law* 215, 217–18.

25 arts 3 and 4 of the Wild Birds Directive (n 9).

26 See, eg, Cases C–355/90 *Commission v Spain (Santoña Marshes)* [1993] ECR I-4221; C–44/95 *R v Secretary of State for the Environment, ex parte Royal Society for the Protection of Birds (Lappel Bank)* [1996] 3 CMLR 411; C–3/96 *Commission v Netherlands* [1998] ECR I-3031.

27 Case C–57/89 *Commission v Germany (Leybucht Dykes)* [1991] ECR I-883.

28 Suzanne Kingston and others, *European Environmental Law* (CUP 2017) 418.

Directive and the habitats of species listed in Annex II.<sup>29</sup> Within these Annexes is a subset of priority habitats and species, ie those elements of biodiversity that are exclusively or predominately found within the territory of EU Member States and are, therefore, primarily an EU responsibility when it comes to their conservation.<sup>30</sup> Where necessary, the Member States are also called on to protect those features of the landscape, such as hedgerows and rivers that connect individual sites and thereby enhance the overall coherence of the network.<sup>31</sup> This is an important feature of EU conservation law as it responds to criticisms of designation as a conservation technique based on island theory. In short, island theory condemns the establishment of ‘islands’ of protected areas for creating genetically isolated populations, in the same way that the populations on remote islands can be isolated, which undermines the long-term viability of a species.<sup>32</sup> Emphasising the importance of ‘green corridors’ between Natura 2000 sites seeks to overcome this although concerns have been raised over whether sufficient connectivity is being achieved, particularly for Europe’s large carnivores.<sup>33</sup> In certain respects, plants are at greater risk from an ‘island’ approach to conservation. They lack the ability to move and so are reliant on their pollinators being able to locate different populations to ensure genetic diversity.

The Habitats Directive significantly expanded the scope of the EU’s protection regime to *potentially* include all species of flora and fauna within the territory of the Member States. The Directive’s aim, set out in Article 2(1), is to ‘contribute towards ensuring biodiversity through the conservation of natural habitats and of wild fauna and flora’. This is qualified, however, by Article 2(2):

Measures taken pursuant to this Directive shall be designed to maintain or restore, at a favourable conservation status, natural habitats and species of wild fauna and flora of *Community interest* (emphasis added).

Therefore, inclusion within the scope of the Habitats Directive is conditioned on whether the criteria for being of Community interest is met, which for species relate to whether they are endangered, vulnerable, rare or endemic to Europe.<sup>34</sup> This is in contrast to the universal protection afforded to all naturally occurring European bird species by Article 1 of the Wild Birds Directive although it should be noted that better coverage does not necessarily equate to better protection. In her Opinion to the case of *Föreningen Skydda Skogen*, AG Kokott notes that a degree of pragmatism is necessary when considering what level of protection is conferred by the Wild Birds Directive to common species.<sup>35</sup>

29 art 3 of the Habitats Directive (n 10).

30 See art 1(d) and (h) of the Habitats Directive, *ibid*.

31 art 10 of the Habitats Directive, *ibid*.

32 William Adams, *Future Nature: A Vision for Conservation* (revised edn, Earthscan 2003) 116.

33 Luca Santini and others, ‘Effectiveness of Protected Areas in Conserving Large Carnivores in Europe’ in Lucas Joppa and others (eds) *Protected Areas: Are They Safeguarding Biodiversity?* (Wiley-Blackwell 2016).

34 art 1(g) of the Habitats Directive (n 10). See art 1(c) for the criteria relating to habitats of Community interest.

35 Joined Cases C-473/19 and C-474/19 *Föreningen Skydda Skogen and Others v Länsstyrelsen i Västra Götalands län*, AG Opinion ECLI:EU:C:2020:699, paras 80–5. Kokott’s point is valid, but as is made clear in the CJEU’s judgment to these cases, the Wild Birds Directive, nevertheless, imposes certain

A further gap in the Habitats Directive is that the third kingdom of the natural world, fungi, is not mentioned at all. This is unsurprising, as fungi receive even less attention in law and policy than plants, but it does limit what the Directive ‘contributes’ towards the conservation of biodiversity and ignores the critical function fungi play in maintaining the Earth’s ecological systems.<sup>36</sup> More curious is that although mention is made of ‘biodiversity’, the deliberate focus is given by the Habitats Directive to flora and fauna; species and habitats. This ran contrary to contemporary thinking in conservation science, in which the emphasis on species and habitats, which had predominated in the 1970s and 1980s, had given way to a more holistic approach based on the conservation of ecosystems.<sup>37</sup> ‘Biodiversity’, one of the most influential conceptual developments in conservation law,<sup>38</sup> is not even defined by the Directive.<sup>39</sup> In contrast, the 1992 Convention on Biological Diversity, adopted in the same year as the Habitats Directive, calls on states to take measures pursuant to the conservation and sustainable use of biodiversity,<sup>40</sup> defined as ‘the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part’.<sup>41</sup> Admittedly, however, the Contracting Parties have found it necessary to devise species and habitat-specific programmes of work,<sup>42</sup> suggesting that holistic conservation frameworks cannot easily be translated into implementable conservation policies, and the Convention’s obligations have been widely condemned for lacking any real legal force.<sup>43</sup>

minimum standards of protection for common bird species that the Member States are required to meet—ECLI:EU:C:2021:166, paras 33–6.

- 36 Suzanne Simard, ‘Mycelium: The Source of Life’ in Paul Stamets (ed), *Fantastic Fungi: How Mushrooms Can Heal, Shift Consciousness, and Save the Planet* (Earth Aware Editions 2019).
- 37 The emphasis on ecosystems has, in turn, been replaced by a focus on protecting, restoring and enhancing the links within and between natural and human systems to promote greater resilience in nature. See Georgina Mace, ‘Whose conservation?’ (2014) 345 *Science* 1558.
- 38 Michael Bowman, ‘The Nature, Development and Philosophical Foundations of the Biodiversity Concept in International Law’ in Michael Bowman and Catherine Redgwell (eds) *International Law and the Conservation of Biological Diversity* (Kluwer Law International 1996). More recently, ‘biodiversity’ as a concept has arguably been complemented, if not superseded by, the idea of adopting an ‘ecosystem approach’. We see this in the *Kishenganga Arbitration*, in which the Court of Arbitration determined that the wider ecosystem assessment adopted by Pakistan to determine the impacts of a hydro-electric project on the Indus river was more suitable than India’s narrower assessment of the habitat of certain fish—*Indus Waters Kishenganga Arbitration (Pakistan v India)*, Final Award of the Court of Arbitration, 20 December 2013, para 99.
- 39 An element of an ecosystem approach may nevertheless be seen within CJEU jurisprudence relating to the Habitats Directive. In Case C–461/17 *Holohan and others v An Bord Pleanála* ECLI:EU:C:2018:883, eg, the Court held that appropriate assessments must take into account the proposed activity’s impacts on habitats and species outside the protected site in question to the extent that this is relevant to the site’s conservation objectives—para 39.
- 40 See arts 5, 8, 9 and 10 of the Convention on Biodiversity (CBD) 1760 UNTS 79.
- 41 art 2 of CBD, *ibid*.
- 42 <<https://www.cbd.int/programmes/>> accessed 12 January 2021.
- 43 Amos (n 20) 40–4; Stuart Harrop and Diane Pritchard, ‘A Hard Instrument Goes Soft: The Implications of the Convention on Biological Diversity’s Current Trajectory’ (2011) 21 *Global Environmental Change* 474; Lakshman Guruswamy, ‘The Convention on Biological Diversity: A Polemic’ in Lakshman Guruswamy and Jeffrey McNeely (eds) *Protection of Global Biodiversity: Converging Strategies* (Duke University Press 1998) 353–55.

The principal measure of EU conservation law is ‘favourable conservation status’. For species, this is defined as:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitat;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future and
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.<sup>44</sup>

This has been elaborated by Commission guidance. ‘Natural range’, for example, is defined as being a dynamic concept that contracts and expands as a species retreats from and (re)colonises different areas.<sup>45</sup> As Epstein notes, however, certain aspects of favourable conservation status remain unclear, including the critical issue of the scale on which it is required.<sup>46</sup> This is not a straightforward question, particularly for plants. The entire population of a species could be located in one small area, leaving it vulnerable even if it is thriving and multiplying.

Favourable conservation status is to be achieved through the designation of protected areas and other measures for the protection of species. The standard of protection provided by the Habitats Directive falls below that of the Wild Birds Directive, however. As noted above, both the Commission and the CJEU strictly enforced the essential ecological character of the Member States’ commitments under the Wild Birds Directive. Article 6 of the Habitats Directive, in contrast, explicitly allows the Member States to derogate from their habitat conservation obligations for socioeconomic purposes. Under Article 6(3), plans and projects that are not connected to the management of a site but are ‘likely to have a significant effect’ must be subject to an appropriate assessment.<sup>47</sup> In the event of a negative

44 art 1(i) of the Habitats Directive (n 10).

45 European Commission, ‘Guidance document on the strict protection of animal species of Community interest under the Habitats Directive 92/43/EEC’ (2007) 11.

46 Yaffa Epstein, ‘Favourable Conservation Status for Species: Examining the Habitats Directive’s Key Concept through a Case Study of the Swedish Wolf’ (2016) 28 *Journal of Environmental Law* 221, 222.

47 This requirement was interpreted broadly by both AG Kokott and the CJEU in Case C-127/02 *Landelijke Vereniging tot Behoud van de Waddenzee v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (Waddenzee)* [2004] ECR I-7405, marking a shift in how the Court applied the precautionary principle to place more emphasis on scientific uncertainty than established scientific risk—see Elen Stokes, ‘Liberalising the Threshold of Precaution—Cockle Fishing, the Habitats Directive, and Evidence of a New Understanding of Scientific Uncertainty’ (2005) 7 *Environmental Law Review* 206. It has been argued, though, that *Waddenzee* represents the ‘high watermark’ for art 6(3), with its subsequent application in domestic contexts resulting in greater discretion being afforded to decision-makers—Peter Scott, ‘Appropriate Assessment: A Paper Tiger?’ in Gregory Jones QC (ed), *The Habitats Directive: A Developer’s Obstacle Course?* (Hart Publishing 2012). In certain Member States, eg, decision-makers have been willing to accept the creation of new areas of habitat as legitimate considerations when assessing whether a proposed activity will undermine the integrity of a protected site under art 6(3) [see Hendrik Schoukens, ‘Habitat Restoration Measures as Facilitators for Economic Development within the Context of the EU Habitats Directive: Balancing No Net Loss with the Preventive Approach?’ (2017) 29 *Journal of Environmental Law* 47]. The CJEU, however, has held that they should instead be viewed as potential

assessment, under Article 6(4), the proposed activity may only proceed if there are no alternatives, it is for an imperative reason of overriding public interest and compensatory measures are adopted so that the overall integrity of Natura 2000 is maintained. For priority sites, only considerations relating to public health and safety and ‘beneficial consequences of primary importance for the environment’ may ordinarily be used to justify a derogation, but other imperative reasons of overriding public interest may be used subject to an opinion from the Commission. The key features of Article 6(4)—alternatives, the nature of ‘imperative reasons of overriding public interest’ and compensation—have been subject to extensive scrutiny, the consensus being that they have been interpreted and applied too generously.<sup>48</sup>

Not only does the Habitats Directive provide a more generous derogations procedure than the Wild Birds Directive, but, through Article 7, also replaces the strict protection of Article 4(4) of the Wild Birds Directive with this less rigid regime.<sup>49</sup> This could be characterised as a legitimate political response to the Member States’ frustrations over the apparent absolute priority that was afforded to conservation objectives under the Wild Birds Directive.<sup>50</sup> It does, however, raise concerns about the importance attached to the protection of nature in EU law and the EU’s commitment to ensuring that land-use activities within its jurisdictions are environmentally sustainable.<sup>51</sup> The ability of socioeconomic considerations to override the conservation objectives of a site designated under either the Wild Birds or Habitats Directive can be contrasted with the extent to which environmental concerns condition, or rather do not condition, the authorisation of projects that fall within the scope of the Environmental Impact Assessment (EIA) Directive.<sup>52</sup> A long-standing critique of

compensation measures under art 6(4)—Joined Cases C-387/15 and C-388/15 *Orleans, Van Buel and Apers and Malcorps Rijssens and Van De Walle v Vlaams Gewest* ECLI:EU:C:2016:583.

- 48 See, *inter alia*, Donald McGillivray, ‘Compensatory Measures under Article 6(4) of the Habitats Directive: No Net Loss for Natura 2000?’ in Charles-Hubert Born and others (eds) *The Habitats Directive in its EU Environmental Law Context: European Nature’s Best Hope?* (Routledge 2015); Rebecca Clutton and Isabella Tafur, ‘Are Imperative Reasons Imperilling the Habitats Directive? An Assessment of Article 6(4) and the IROPI Exception’ in Gregory Jones QC (ed), *The Habitats Directive: A Developer’s Obstacle Course?* (Hart Publishing 2012); Ludwig Krämer, ‘The European Commission’s Opinions under Article 6(4) of the Habitats Directive’ (2009) 21 *Journal of Environmental Law* 59.
- 49 Note that the strict rules regarding the designation of sites under Article 4 of the Wild Birds Directive remain unaffected. Socioeconomic considerations, including those that might be considered imperative reasons of overriding public interest under the Habitats Directive, cannot be taken into account when deciding whether to designate a site. See Case C-44/95 (n 26).
- 50 Colin Reid, *Nature Conservation Law* (3rd edn, Thomson Reuters 2009), 189.
- 51 There is not space in this article for a detailed discussion of the EU’s Common Agricultural Policy (CAP). This is another example, however, of how nature has been subordinated to economic concerns within EU law and policy. While criticisms from commentators such as Scott and Taylor, highlighting the environmental harm caused by the CAP, may no longer apply (at least to the same extent), concerns persist over whether the reformed CAP will deliver in terms of supporting European biodiversity—Isabelle Doussan and Hendrik Schoukens, ‘Biodiversity and Agriculture: Greening the CAP Beyond the Status Quo?’ in Charles-Hubert Born and others (eds) *The Habitats Directive in its EU Environmental Law Context: European Nature’s Best Hope?* (Routledge 2015). See also Peter Taylor, *Beyond Conservation: A Wildland Strategy* (Earthscan 2005) 187–90 and Joanne Scott, *Development Dilemmas in the European Community: Rethinking Regional Development Policy* (Open University Press 1995) 108–11.
- 52 Directive 2014/52/EU amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment [2014] OJ L124/1.

EIA, not just in relation to the EU's regime but other national and international systems as well,<sup>53</sup> is its lack of substantive obligations in the event of a negative assessment.<sup>54</sup> Decision-makers are only required to take into account the information that is provided through the EIA process, not halt, or even compel adjustment to, projects that are likely to have a severe negative impact on the environment.<sup>55</sup> Therefore, the EU's conservation and EIA regimes are the examples of long-standing concerns about sustainable development as a legal and policy framework, namely that it merely facilitates unsustainable status quos by prioritising economic development over environmental imperatives.<sup>56</sup> In the case of conservation, what was previously considered to be a strong protection regime under the Wild Birds Directive has been undermined to facilitate economic development by Article 7 of the Habitats Directive, with not even priority habitats being given appropriate consideration in the decision-making processes.<sup>57</sup> The EIA Directive, on the other hand, provides inadequate safeguards against environmentally harmful economic activities.<sup>58</sup>

This could simply be another reflection of the national economic concerns that led to the Wild Birds Directive being watered down through the Habitats Directive. It may also be attributable to the more fundamental issue of how EU law and policy have pivoted around a certain understanding of sustainable development. Scotford notes how the inclusion of sustainable development as both a policy concept and policy goal in the European treaties deliberately reflects the outcomes of the 1987 World Commission on Environment and Development<sup>59</sup> and the 1992 Rio Declaration.<sup>60</sup> This understanding of sustainable development, which works on the flawed assumption that its three pillars—environmental protection, economic development and social equity—are mutually reinforcing,<sup>61</sup> finds its most recent expression in the 2015 Sustainable Development Goals.<sup>62</sup> Even here, however, following

53 Bradley Karkkainen, 'NEPA and the Curious Evolution of Environmental Impact Assessment in the United States' in Jane Holder and Donald McGillivray (eds), *Taking Stock of Environmental Assessment: Law, Policy and Practice* (Routledge-Cavendish 2007) 55–8; Neil Craik, *The International Law of Environmental Impact Assessment: Process, Substance and Integration* (CUP 2008) 90–108.

54 Jane Holder, *Environmental Assessment: The Regulation of Decision Making* (OUP 2004) ch 7.

55 art 8 of EIA Directive (n 52).

56 Andrea Ross-Robertson, 'Is the Environment Getting Squeezed Out of Sustainable Development?' [2003] Public Law 249; Wilfred Beckermann, 'Sustainable Development: Is It a Useful Concept?' (1994) 3 *Environmental Values* 191.

57 Krämer, 'The European Commission's Opinions' (n 48) and McGillivray (n 48).

58 Holder (n 54) 235.

59 A/42/427, 4 August 1987, Annex. The way the EU has adopted the Brundtland Commission's definition of sustainable development is not entirely accurate, however. Following the oft-quoted statement that 'sustainable development is development that meets the need of the present without compromising the ability of future generations to meet their own needs', the Brundtland Commission goes on to note that 'sustainable development does imply limits—not absolute limits but limitations imposed . . . by the ability of the biosphere to absorb the effects of human activities' (at 24). This is not explicitly reflected in any EU environmental law or policy instrument.

60 31 ILM 874 (1992). Eloise Scotford, *Environmental Principles and the Evolution of Environmental Law* (Hart Publishing 2017) 91.

61 The three pillars should instead be seen as necessitating a process of balancing between competing but equally legitimate policy objectives—Emily Lydgate, 'Sustainable Development in the WTO: from Mutual Supportiveness to Balancing' (2012) 11 *World Trade Review* 621.

62 A/RES/70/1, 21 October 2015.

decades of research demonstrating the unsustainability of sustainable development activities, there are concerns that critical environmental priorities will be improperly weighed against socioeconomic interests,<sup>63</sup> not least because of the inherently anthropocentric nature of the concept.<sup>64</sup> Therefore, there is a wider question, beyond the scope of this article, of how sustainable development can be reformed, both within and beyond the European acquis, so that the inevitable trade-offs between the three pillars are made in a manner that is compatible with the ecological limits of the Earth.<sup>65</sup> The early approach under the Wild Birds Directive indicates on what such an approach might look like in practice.

The protection of habitats under Articles 4 and 6 is just one element of the Habitats Directive. The other, governed primarily by Articles 12 (fauna) and 13 (flora), is the protection of species. The Member States are required to take the necessary measures ‘to establish a system of strict protection’ for the species of Community interest listed in Annexes II and IV of the Directive.<sup>66</sup> For plants, this entails prohibiting:

- a. the deliberate picking, collecting, cutting, uprooting or destruction of such plants in their natural range in the wild and
- b. the keeping, transport and sale or exchange and offering for sale or exchange of specimens of such species taken in the wild . . . .

Note that these prohibitions apply to all stages of a species’ lifecycle, making it just as illegal to pick a seed off the ground as it is to dig up the parent plant.<sup>67</sup> This is important, as although collecting seed may not damage a plant, it will reduce a species’ rate of population growth in the wild, particularly if it is monocarpic (the parent plant dies after setting seed).

Annexes II and IV are complemented by Annex V, which lists species that must be subject to management measures if, following surveillance under Article 11, they are deemed necessary to ensure that those species maintain a favourable conservation status. Such measures, listed in Article 14, may include regulating access to certain areas, restricting methods of, and periods for, removing species from the wild, imposing a quota or permitting system and controlling trade in wild specimens.

A two-tier approach to species protection can, therefore, be identified in the Habitats Directive; species requiring strict protection are listed in Annex IV, if not already included in Annex II, with those that might need protection listed in Annex V.

63 Nina Eisenmenger and others, ‘The Sustainable Development Goals Prioritize Economic Growth over Sustainable Resource Use: a Critical Reflection on the SDGs from a Socio-ecological Perspective’ (2020) 15 *Sustainability Science* 1101.

64 Louis Kotzé and Duncan French, ‘The Anthropocentric Ontology of International Environmental Law and the Sustainable Development Goals: Towards an Ecocentric Rule of Law in the Anthropocene’ (2018) 7 *Global Journal of Comparative Law* 5.

65 A legal principle of ecological sustainability has been proposed to this effect in, *inter alia*, Andrea Ross, ‘Modern Interpretations of Sustainable Development’ (2009) 36 *Journal of Law and Society* 32; Klaus Bosselmann, *The Principle of Sustainability* (2nd edn, Routledge 2017) ch 2. For a discussion of how this principle might operate in practice, see Amos (n 20) 228–34.

66 Note that the bryophytes listed in Annex II are excluded from Annex IV.

67 art 13(2) of the Habitats Directive (n 10).

Similar approaches have been adopted in other conservation regimes. Most notably, the 1973 Convention on International Trade in Endangered Species (CITES)<sup>68</sup> adopts a tiered approach to protection. Although this Convention has a narrower remit than the Habitats Directive, in that it is only concerned with regulating the impacts of international trade on endangered species, it shares the Directive's overall goal of halting biodiversity loss. Appendix I of CITES lists species considered to be at risk of extinction due to the impacts of international trade. Appendix II includes species that might become at risk of extinction unless international trade in them is regulated and the so-called 'like species' species, ie species that resemble Appendix I and other Appendix II species and so are included to ensure that the protected species are not traded as something else.<sup>69</sup> Trade in Appendix I species is strictly controlled and may not be for commercial purposes.<sup>70</sup> Appendix II species, in contrast, may be traded commercially, but only if the designated scientific authority of the state of export has determined that this will not be detrimental to that species' survival.<sup>71</sup>

Providing for the strict protection of a set of species is, in terms of resource-efficiency at least, a sensible conservation strategy and Annexes II and IV of the Habitats Directive deliver this. What is not clear is the purpose of Annex V. In a certain regard, it may be considered as similar to Appendix II of CITES in which it appears to list species that face a lower risk of extinction but may require additional measures to ensure that their exploitation is sustainable.<sup>72</sup> However, while any species that meets the relevant criteria may enjoy the protection offered by Appendix II of CITES,<sup>73</sup> Annex V of the Directive, and consequently the measures in Article 14, is limited to species of Community interest. There is no route to protection for the significant proportion of European biodiversity that is not considered to be of Community interest and, therefore, not listed by the Directive. This is concerning because, as the study below shows, there is a large number of unlisted plant species in Europe that are threatened with extinction.

As with habitats, the Member States may derogate from their species protection obligations. The reasons for which they may do so, set out in Article 16 of the Habitats Directive, incorporate socioeconomic interests in a similar manner to Article 6(4). They include the prevention of damage to crops, livestock and other

68 Convention on International Trade in Endangered Species of Fauna and Flora, Washington, 3 March 1973, in force 1 July 1975, 993 UNTS 243.

69 See Article II. A third appendix lists species that are protected at a national level and require international cooperation to control trade in specimens originating from the regulating state.

70 art III of CITES (n 68).

71 art IV. For a discussion of the CITES appendices in the context of plant conservation, see Amos (n 20) 158–62.

72 This analogy is not perfect. Species listed in Appendix II of CITES are automatically subject to regulation, whereas species in Annex V of the Habitats Directive are only covered by art 14 if surveillance conducted pursuant to art 11 indicates that this is necessary.

73 There are concerns that CITES listing decisions are becoming increasingly politicised, however, particularly when the species concerned are economically important. See Melissa Blue Sky, 'Getting on the List: Politics and Procedural Manoeuvring in CITES Appendices I and II Decisions for Commercially Exploited Marine and Timber Species' (2009–10) 10 Sustainable Development Law & Policy 35.

property, the protection of public health and safety, and ‘other imperative reasons of overriding public interest, including those of a social or economic nature’.

There is evidence to suggest that the CJEU is willing to interrogate the reasons put forward by the Member States to justify a derogation under Article 16. In a case concerning the hunting of the grey wolf (*Canis lupus*), for example, the failure of Finland to demonstrate why the indiscriminate hunting of wolves was necessary to prevent serious damage to livestock, as opposed to the targeting of individual wolves known to take livestock, resulted in the Commission’s complaint being upheld.<sup>74</sup> However, relatively few conservation enforcement actions are being brought by the Commission against the Member States under Article 258 of the Treaty on the Functioning of the European Union and so the CJEU does not have the opportunity to develop jurisprudence in this area. Krämer attributes this to the fact that issues now relate more to complex questions of the application of national law in specific cases, which touch upon domestic economic interests, than the relatively straightforward assessment of whether a Member State has correctly transposed the Directive.<sup>75</sup>

What is also notable is that there has never been a case brought for a failure to protect a specific plant species. In contrast, enforcement actions have been initiated against France for failing to protect the European hamster (*Cricetus cricetus*),<sup>76</sup> Finland for failing to protect the grey wolf<sup>77</sup> and Poland for failing to protect the Eurasian otter (*Lutra lutra*).<sup>78</sup> Such actions are insufficient given that many more species of fauna are under pressure, but that some cases have been brought suggests that animals are on the Commission’s conservation agenda in a way that plants simply are not.<sup>79</sup> This apparent bias is reinforced by the fact that there are currently no EU species action programmes dedicated to plants, whereas four exist for animals,<sup>80</sup> and that the only Commission guidance for species protection focusses exclusively on fauna.<sup>81</sup> This bias goes some way in explaining why, as the next section illustrates, so many European plant species are at risk of extinction.

74 Case C–342/05 *Commission v Finland* [2007] ECR I-4713, paras 40–44.

75 Ludwig Krämer, ‘Implementation and Enforcement of the Habitats Directive’ in Charles-Hubert Born and others (eds), *The Habitats Directive in its EU Environmental Law Context: European Nature’s Best Hope?* (Routledge 2015) 241–42.

76 Case C–383/09 *Commission v France* [2011] ECR I-4869.

77 Case C–342/05 (n 74).

78 Case C–46/11 *Commission v Poland* [2012] unreported.

79 It may also be a reflection of the fact that complaints regarding Member States’ failure to meet their plant conservation obligations are not being raised with the Commission by national actors. This could suggest that the bias against plants within the EU legal system is shown by all stakeholders, not just the Commission. Equally, it could also simply be a reflection of the relative lack of resources available to conservation NGOs and other bodies to monitor all European species and instigate action at the European level.

80 <[https://ec.europa.eu/environment/nature/conservation/species/action\\_plans/index\\_en.htm](https://ec.europa.eu/environment/nature/conservation/species/action_plans/index_en.htm)> accessed 12 February 2021. Action plans have been developed for the common midwife toad (*Alytes obstetricans*); Danube clouded yellow butterfly (*Colias myrmidone*); European ground squirrel (*Spermophilus citellus*) and all European bat species. Additional work has been done by the EU on Europe’s large carnivores and to implement the Council of Europe’s Pan-European Action Plan for the eight species of European sturgeon—see Council of Europe document T-PVS/Inf(2018) 6.

81 European Commission (n 45).

### 3. A STUDY ON THE CONSERVATION STATUS OF EUROPE'S PLANTS

The discussion above is primarily a legal analysis of the Habitats Directive. While it highlights certain issues in the Directive's application to plants, as well as wider concerns over its implementation and enforcement, it reveals little about the Directive's real-world impact on European flora. For this, it is necessary to examine the conservation status of Europe's plants.

#### 3.1 The IUCN Red List—An Overview

Established in 1964, the IUCN Red List is the most comprehensive global list that categorises species according to how at risk they are of extinction. Assessments are primarily conducted by the IUCN Species Survival Commission and other organisations that are approved by or partnered with the IUCN. Assessments carried out by other expert parties in strict accordance with the Red List guidelines will also be considered for inclusion.<sup>82</sup>

Species are classified into one of eight categories, ranging from 'extinct' to 'least concern', or as 'data deficient'. There are three threatened categories in the Red List system—'critically endangered', 'endangered' and 'vulnerable'—defined through a set of five criteria.<sup>83</sup> Criterion A is based on the rate of a species' population decline across either 10 years or 3 generations, whichever is longer, and whether the causes of that decline are understood and under control. Criterion B concerns species' geographic range. Criterion C is similar to A in that it looks at population decline, but it applies to species with small populations (defined as under 10,000 mature individuals for vulnerable, 2,500 for endangered and 250 for critically endangered). The time periods over which the population decline is measured are also shorter. Species with very small populations (under 1,000 mature individuals for vulnerable, 250 for endangered and 50 for critically endangered) are covered by Criterion D. Criterion E is broader and includes any form of quantitative analysis of the probability of a species' extinction based on factors such as habitat requirements, known threats and pre-existing conservation efforts.<sup>84</sup> Specific conditions relating to the three threatened categories have been established for each criterion. Meeting just one of the conditions results in listing and, if a species meets multiple conditions across different categories, the highest categorisation is applied. So, for example, if a species' population size and geographic range indicate that it is vulnerable but its rate of decline meets the conditions necessary for it to be classified as endangered, it will be listed as endangered.

These objective criteria addressed previous concerns that assessments for the Red List were being compromised by political considerations and other subjective concerns.<sup>85</sup> Their introduction established the Red List as an important source of information in the design and implementation of conservation policies and programmes. In 2004, the World Conservation Congress called on states to adopt the IUCN

82 <<https://www.iucnredlist.org/assessment/process>> accessed 12 January 2021.

83 The other categories are: extinct; extinct in the wild; near threatened; conservation dependent and least concern.

84 IUCN, *IUCN Red List Categories and Criteria: Version 3.1*. (2nd edn, IUCN 2012) 28–9.

85 John Lamoreux and others, 'Value of the IUCN Red List' (2003) 18 *Trends in Ecology and Evolution* 214.

criteria in national conservation policies,<sup>86</sup> but this has not been universally followed.<sup>87</sup> There is also evidence to suggest that greater use is being made of the Red List in academic research,<sup>88</sup> but increased references to the Red List in publications have limited conservation value.

In addition to the global list, the IUCN is working with various stakeholders in the compilation of regional and national red lists. These provide similar assessments to the global list, adjusted to reflect the more defined geographic scope and work on a scale that is more practicable for conservation planners.<sup>89</sup> There is not, however, a dedicated programme for the systematic assessment of biodiversity in every region and country and whether one takes place largely depends on the availability of funding. As such, no national or regional list has been compiled for much of Africa, South America or the Pacific Islands, despite these regions being host to a huge range of spectacular, and endangered, biodiversity.<sup>90</sup>

Funded by the European Commission, significant work has been done to produce a European Red List, with over 15,000 species assessed.<sup>91</sup> Here there is further evidence of the bias against plants. While all vertebrate animals and a large number of invertebrates, including all molluscs, bees and butterflies, have been assessed, only trees, medicinal plants, bryophytes and a 'selected set' of plants have been targeted for assessment.<sup>92</sup> Assessing the status of animals is of course important and can serve broader policy agendas than just conservation. The EU's 2030 Biodiversity Strategy is identified as an important element of the European Green Deal, for example, the EU's post-COVID growth strategy.<sup>93</sup> However, to not have as an explicit goal, if not a current priority, the assessment of all plant species is ecologically incoherent and appears to run counter to both the EU's focus on habitats and the emphasis it now places on supporting ecosystems.<sup>94</sup> Legal instruments and policy documents that discuss the protection of habitats are, in essence, talking about the protection of plants because in the vast majority of cases the defining feature of a habitat is its plant life. To not recognise this is, I suggest, a failure to see the wood for the trees.

One group of these 'selected plants' is those species that are listed in European or international legal instruments. Just as important as understanding the status of species that are protected by EU and international law, however, is understanding the status of those species that are not. The global IUCN Red List is an invaluable resource in this regard. What follows is a study on the status of the plants that are and

86 Resolution 3.013, *The Uses of the IUCN Red List of Threatened Species* (IUCN World Conservation Congress 2004).

87 Although for an example of how the Red List can be effectively used at the national level, see Miguel Moraes and others, 'Categorizing Threatened Species: an Analysis of the Red List of the Flora of Brazil' (2014) 48 *Oryx* 258.

88 Ana Rodrigues and others, 'The Value of the IUCN Red List for Conservation' (2006) 21 *Trends in Ecology and Evolution* 71.

89 <<https://www.nationalredlist.org/home/about/>> accessed 12 January 2021.

90 <<https://www.nationalredlist.org/>> accessed 12 January 2021.

91 <[https://ec.europa.eu/environment/nature/conservation/species/redlist/index\\_en.htm](https://ec.europa.eu/environment/nature/conservation/species/redlist/index_en.htm)> accessed 12 January 2021.

92 *ibid.*

93 European Commission, 'EU Biodiversity Strategy for 2030' (n 2) 3.

94 European Commission, 'Our Life Insurance' (n 1) 3.2.

are not protected by the Habitats Directive using the IUCN Red List. The objective of this exercise is not to provide an overview of the conservation status of Europe's plants.<sup>95</sup> Instead, it is to interrogate one measure on the effectiveness of the Habitats Directive at protecting wildlife by comparing the status of those plants species that are listed in its Annexes with those that are not. It is already established that plants in Europe are struggling.<sup>96</sup> As the EU's principal mechanism for conservation, it is critical to understand whether the Habitats Directive is delivering for plants and, if it is not, consider how its design and operation could be reformed so that it does.

### 3.2 Methodological Notes

The advanced search function on the IUCN Red List website<sup>97</sup> was used using the following filters:

- taxonomy—Plantae kingdom;
- land regions—Europe and
- marine regions—Arctic; North-East Atlantic; the Mediterranean and Black Sea.<sup>98</sup>

Two categories of species were identified: those that are listed in Annex II, IV or V of the Habitats Directive and those that are not. Species that are listed in the Habitats Directive but did not appear in the initial search results were searched individually on the IUCN Red List and, where they appeared, added to the results. This accounted for the fact that some species in the Annexes are listed under synonyms on the Red List, or have been renamed or reclassified since the Annexes were compiled. For example, the listed *Leucojum nicaeense* is now *Acis nicaeense*.<sup>99</sup>

Species' conservation status and population trends were recorded and compiled into the following:

1. the total number of species in each IUCN conservation status classification;
2. the total number of species in each IUCN population trend classification;

95 See instead the composite Member State data for the 2013–18 reporting period, <<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-17-national-summary-dashboards/conservation-status-and-trends>> accessed 12 January 2021. This shows that 35.45% of plants are assessed as being in a favourable conservation status, which is broadly in line with the 31.71% of plants shown not to be listed in the IUCN's three threatened categories of extinction risk for which sufficient data exists for an assessment (Table 1). Note that the data for the 2013–18 report uses a greater sample size, as it comprises assessments of all species that occur within different biogeographical regions (coastal habitats, forests, grasslands, etc). A species that is located in more than one biogeographical region within a single Member State will therefore be subject to multiple assessments, whereas the study presented in this article only counts each species once.

96 <[https://ec.europa.eu/environment/nature/conservation/species/redlist/index\\_en.htm](https://ec.europa.eu/environment/nature/conservation/species/redlist/index_en.htm)> accessed 12 January 2021.

97 <<https://www.iucnredlist.org/search>> accessed 12 January 2021.

98 These correspond to the regions listed by the European Environment Agency as being European seas: <[https://www.eea.europa.eu/themes/coast\\_sea/intro](https://www.eea.europa.eu/themes/coast_sea/intro)> accessed 12 January 2021.

99 See Ma Ledó and others, 'Phylogenetic Analysis of *Leucojum* and *Galanthus* (Amaryllidaceae) Based on Plastid *matk* and Nuclear Ribosomal Spacer (ITS) DNA Sequences and Morphology' (2004) 246 *Plant Systematics and Evolution* 223 for the scientific basis for this reclassification.

**Table 1: Conservation status of Europe's flora**

IUCN Category	IUCN red list only, n (%)		Listed in habitats directive, n (%)	
Extinct	5	0.22	1	0.15
Extinct in the wild	3	0.13	0	
Critically endangered	171	7.59	85	12.54
Endangered	196	7.68	129	19.03
Vulnerable	150	6.66	114	16.81
Lower risk/conservation dependent	2	0.09	1	0.15
Near threatened or lower risk/near threatened	133	5.91	78	11.50
Least concern or lower risk/least concern	1,374	61.01	135	19.19
Data deficient	218	9.68	100	14.75
Unassessed	NA		35	5.16
	2,252		678	

3. the conservation status of the species in each IUCN population trend classification and
4. the conservation status and population trends of priority and non-priority species in the Habitats Directive.

There are 678 plant species listed in the Habitats Directive,<sup>100</sup> of which 35 were unassessed by the IUCN Red List at the time of writing. That 2,252 species were listed by the IUCN as having a European distribution that are not included in the Habitats Directive Annexes. Percentages were calculated and rounded to two decimal places. All data were correct as of May 2020.

### 3.3 Results

Comparing the conservation status of species first (Table 1), what is immediately apparent is that there are proportionally more species in the three threatened categories listed under the Habitats Directive. This indicates that the Directive is targeting the correct species for protection, also evident in that the majority of species not included in the Annexes (61.01%) are considered to be of least concern. As I discuss further below, however, the contents of the Annexes have been relatively stable since

100 Note that this excludes *Marsilea azorica*, a priority listed species. This was mistakenly identified in 1983 as a new European species but is in fact *M. hirsuta*, an Australian native and an alien species in Europe. Its conservation status in Europe has therefore not been assessed by the Red List, although it is believed to have a stable population. How the EU responds to an invasive/alien species is primarily governed by Regulation 1143/2014 on the prevention and management of the introduction and spread of invasive alien species [2014] OJ L317/35. The first response to the discovery of an invasive/alien species is eradication. Where this is ineffective or unfeasible, Member States must take steps to contain and control the species. That *M. hirsuta* has a stable population suggests that while eradication has not been possible, efforts to control its spread are working. For further discussion of the Regulation, see Amos (n 20) 174–75. Note also that Annex V lists '*Sphagnum* spp. except for *S. pylaisii*' and '*Lycopodium* spp', meaning all species within those genera. A search for these genera on the Red List identifies one assessed species of *Lycopodium* and three assessed species of *Sphagnum*.

**Table 2: Population trends of Europe's flora**

IUCN Population Trend	IUCN red list only, <i>n</i> (%)		Listed in habitats directive, <i>n</i> (%)	
Increasing	50	2.23	22	3.25
Stable	912	40.64	178	26.29
Decreasing	376	16.76	239	35.30
Unknown	906	40.37	203	29.99
Unassessed	N/A		35	5.17
	2,244 <sup>a</sup>		677 <sup>a</sup>	

<sup>a</sup>Excludes species that are either extinct or extinct in the wild.

the Directive was adopted, with the only major changes being the addition of new species following EU enlargement. That over 30% of species are either critically endangered or endangered (12.54 and 19.03%, respectively) is, therefore, concerning, as it suggests that measures adopted pursuant to the Directive have not resulted in demonstrable improvements in these species' status.

A further issue of concern is that a fifth of species listed by the Directive is considered to be of least concern. This in itself is to be welcomed as it means that these species face a low risk of extinction. However, the question has to be asked whether continuing to oblige the Member States to actively protect these species is appropriate when there are other species that are at much greater risk of extinction.<sup>101</sup> Resources for conservation are finite and globally fall below the level needed to cover all species in need of protection.<sup>102</sup> It is, therefore, crucial that these are used efficiently. Just over a fifth of European plants not protected by the Directive are in the at-risk categories and so arguably should be the target of EU conservation action.

Similar conclusions can be reached in relation to the population trends (Table 2). That 35.30% of the species in the Annexes are declining again shows that the Directive is largely targeting the correct species but also suggests that it is not delivering the level of action needed to reverse these species' decline. Additionally, 29.99% of listed species have an unknown population. Two provisions in the Directive relate to research. Article 11 requires the Member States to monitor the conservation status of listed species, although there is no specific requirement to systematically assess whether populations are rising or falling. Also relevant is Article 18, which requires the Member States and the Commission to 'encourage' conservation research, in part to assist the Member States in complying with Article 11. That the population status of so many species is unknown suggests that implementation of these provisions is falling short. This may, however, be a consequence of the relatively limited role states play in conservation. They can develop legal and policy frameworks and provide funding to encourage research and action in particular directions, but actual

101 On the other hand, there is an argument, based on the principle of prevention, that commonplace biodiversity should be actively conserved as this requires fewer resources and carries less risk than only intervening once a species is facing extinction—Stuart Harrop, 'Conservation Regulation: a Backward Step for Biodiversity?' (1999) 8 *Biodiversity and Conservation* 679.

102 Amos (n 20) 208–09, 215–16.

**Table 3: Conservation status of Europe's flora with an increasing population**

IUCN Category	IUCN red list only, <i>n</i> (%)		Listed in habitats directive, <i>n</i> (%)	
Critically endangered	3	6	4	18.18
Endangered	4	8	1	4.55
Vulnerable	3	6	5	22.73
Lower risk/conservation dependent	0		0	
Near threatened or lower risk/near threatened	1	2	4	18.18
Least concern or lower risk/least concern	39	78	6	27.28
Data deficient	0		2	9.09
	50		22	

conservation work is primarily undertaken by non-state actors.<sup>103</sup> The question is, therefore, whether the frameworks devised by states can be redesigned so as to encourage research into those species that we have yet to properly assess in terms of conservation status.

Also notable from these results is that the population status of 40.37% of species that are not included in the Directive is unknown as well. Therefore, it is possible that the number of unprotected species that are declining, and, therefore, in need of protection under EU law is significantly more than the current figure of 16.76%.

A more detailed picture emerges when we compare the conservation status of listed and unlisted plants with the same population trend. At first glance, the status of those species with an increasing population suggests that inclusion in the Habitats Directive results in better support for those species most at risk of extinction (Table 3). Three times as many species that are critically endangered are increasing under the Habitats Directive (18.18% against 6%) and around four times as many vulnerable species (22.73% against 6%). Some caution must be exercised when reading these results, however. The number of species involved is significantly lower than that for other population trend categories, at just 22 listed species and 50 unlisted species, and, proportionally, there are around twice as many unlisted endangered species that are increasing (8% against 4.55%).

The results for species with a stable population appear similarly positive for plants included in the Annexes (Table 4). Proportionally, more species that are protected by the Habitats Directive and are in one of the IUCN's three threatened categories have a stable population. This suggests that listing has a stabilising effect on a species' population. Pressures on plant diversity are increasing,<sup>104</sup> however, and so without concerted effort, it is possible, if not likely, that rare and endangered species that are

103 *ibid* 199–205.104 Royal Botanic Gardens—Kew, *State of the World's Plants Report—2017* (2017).

**Table 4: Conservation status of Europe's flora with a stable population**

IUCN Category	IUCN red list only, <i>n</i> (%)		Listed in habitats directive, <i>n</i> (%)	
Critically endangered	36	3.95	17	9.55
Endangered	33	3.62	23	12.92
Vulnerable	44	4.82	26	14.61
Lower risk/conservation dependent	0		0	
Near threatened or lower risk/near threatened	38	4.17	28	15.73
Least concern or lower risk/least concern	752	82.46	65	36.52
Data deficient	9	0.99	19	10.67
	912		178	

currently considered stable may soon fall into decline. Therefore, proper monitoring of these species in the wild is crucial.

More concerning is the status of those species with a decreasing population (Table 5). The proportion of plants in the three threatened categories is broadly similar for listed and unlisted species, although in each case more is found under the Habitats Directive. This is a further indication that the Habitats Directive is failing to reverse the declining populations of those species most at risk of extinction. As such, if this study was repeated in the future, many more species would likely be endangered, critically endangered or extinct.

Finally, the conservation status of species with an unknown population raises concerns similar to those regarding species with a declining population and the efficacy of the provisions in the Habitats Directive that encourages scientific research. Of those species with an unknown population, proportionally more in each of the three threatened categories are listed in the Habitats Directive (Table 6). Insufficient action is being taken to gather the most basic information—whether a species is increasing or decreasing—for those plants that are considered most at risk of extinction.

An important caveat to the above data is that it relates to the status of a species across Europe, not just within the territory of the EU. Therefore, it is possible that the status of certain species that are doing well in the EU is being negatively impacted because they are struggling in non-EU countries. This does not apply to the priority species in Annex II, however. As noted above, these are species that are found exclusively or primarily within the EU. A comparison of priority and non-priority species, therefore, provides a clearer indication of whether the Habitats Directive is having a positive impact on Europe's plants.

In terms of population trends, there is very little difference between priority and non-priority species (Table 7). This provides further support to the suggestion that listing under the Directive brings few benefits, as those species that are principally located within the EU are doing no better or worse than those that can be found across the continent and, therefore, fall under other conservation regimes.

There are greater differences in these species' conservation status (Table 8). Almost a quarter (24.14%) of priority species are believed to be critically

**Table 5: Conservation status of Europe's flora with a decreasing population**

IUCN Category	IUCN red list only		Listed in habitats directive	
Critically endangered	67	17.82	45	18.83
Endangered	101	26.86	80	33.47
Vulnerable	55	14.63	42	17.57
Lower risk/conservation dependent	0		0	
Near threatened or lower risk/near threatened	50	13.30	23	9.62
Least concern or lower risk/least concern	87	23.14	26	10.88
Data deficient	16	4.26	23	9.62
	376		239	

endangered, which is approximately three times as many non-priority species (8.62%). Similarly, nearly twice as many priority species are considered to be endangered (27.09% against 15.93%). In contrast, only 4.93% of priority species are classified as 'least concern', whereas 25.07% of non-priority species are in this category. That a greater proportion of priority species than non-priority species classified as being in one of the three IUCN threatened categories indicate that species located mainly within the EU are generally at a greater risk of extinction than those with a wider European distribution. Further research is needed, particularly to determine the extent to which other factors are impacting on species' conservation status, but at the very least the data on priority species raise questions over whether the Habitats Directive delivers a level of protection that goes beyond that which is achieved through purely domestic legislation.

To summarise, listing in the Habitats Directive appears to not provide any demonstrable benefits for plants. As a rule, those species that are listed are more likely to be in one of the three threatened categories of the IUCN Red List and have a declining population. As noted above, this means that the correct species, ie those facing a higher risk of extinction, are listed. However, the contents of the Annexes have remained largely unchanged since the Directive was adopted, meaning that the majority of these species have been protected under EU law since 1992. That many are still at risk of extinction suggests that the protection provided by the Directive is not leading to improvements in the conservation status of some of Europe's most vulnerable plants.

As with any study, it is important to recognise the limitations of the data set. In particular, the dates on which the IUCN assessments of species included in this study were conducted vary, but in some cases are up to a decade old. The status of some species may, therefore, have changed. This is an ongoing issue with the IUCN Red List, which can only really be addressed through additional funding to facilitate more frequent assessments.<sup>105</sup> Additionally, this study does not go into the detail of

105 Carlo Rondinini and others, 'Update or Outdate: Long-Term Viability of the IUCN Red List' (2014) 7 *Conservation Letters* 126.

**Table 6: Conservation status of Europe's flora with an unknown population**

IUCN Category	IUCN red list only, <i>n</i> (%)		Listed in habitats directive, <i>n</i> (%)	
	<i>n</i>	%	<i>n</i>	%
Critically endangered	65	7.17	19	9.36
Endangered	58	6.40	25	12.32
Vulnerable	48	5.30	41	20.20
Lower risk/ conservation dependent	2	0.22	1	0.49
Near threat- ened or lower risk/ near threatened	44	4.86	23	11.33
Least concern or lower risk/least concern	496	54.75	38	18.72
Data deficient	193	21.30	56	27.59
	906		203	

**Table 7: Comparison of the population trends of priority and non-priority species in Annex II**

IUCN Population Trend	Priority species, <i>n</i> (%)		Non-priority species	
	<i>n</i>	%	<i>n</i>	%
Increasing	9	4.43	12	3.13
Stable	48	23.65	100	26.11
Decreasing	78	38.42	143	37.34
Unknown	59	29.06	108	28.20
Unassessed	9	4.43	20	5.22
	203		383	

whether different types of plants are doing better than others. It may be that the Habitats Directive is better at protecting plants with particular characteristics. There may also be differences between populations of the same species in different Member States. Nevertheless, the results of this study highlight limitations in the Habitats Directive's ability to deliver positive change for Europe's biodiversity. The remainder of this article considers how the Directive might be reformed so that it becomes a better conservation tool, both for plants and the wider natural world.

**Table 8: Comparison of the conservation status of priority and non-priority species in Annex II**

IUCN Category	Priority species, <i>n</i> (%)		Non-priority species, <i>n</i> (%)	
Extinct	0		0	
Extinct in the wild	0		0	
Critically endangered	49	24.14	33	8.62
Endangered	55	27.09	61	15.93
Vulnerable	37	18.23	67	17.49
Lower risk/conservation dependent	0		1	0.26
Near threatened or lower risk/near threatened	24	11.82	42	10.97
Least concern or lower risk/least concern	10	4.93	96	25.07
Data deficient	19	9.36	63	16.45
Unassessed	9	4.43	20	5.22
	203		383	

#### 4. POTENTIAL REFORMS

A key takeaway from the above study is that there are some species currently listed in the Habitats Directive that could be removed, or at least transferred to Annex V, because they face a lower risk of extinction and others that are not listed that arguably should be. If a species that was common in 1992 has declined to the point that it is now at risk of extinction, that the lists in the Habitats Directive have gone unamended in that time means that this species remain unprotected at the EU level. Therefore, allowing for amendments is critical to the success of listing mechanisms as they enable the law to reflect changes in species' status from when the original lists were compiled. Under Article XV of CITES, for example, proposed amendments to the Appendices are communicated to the Convention's Secretariat at least 150 days prior to the next Conference of the Parties and adopted if two-thirds of the voting parties present are in favour. To guide these listing decisions, biological criteria have been adopted for each Appendix.<sup>106</sup> Controversies around the amendment of CITES's Appendices remain, not least with regard to whether range states are sufficiently consulted before proposals being made,<sup>107</sup> but a clear, scientifically informed process exists. No equivalent procedure has been established under EU law, either through the text of the Habitats Directive or subsequent Commission

106 CITES Resolution Conf 9.24 (Criteria for amendment of Appendices I and II).

107 Michael Bowman, Peter Davies and Catherine Redgwell, *Lyster's International Wildlife Law* (2nd edn, CUP 2010) 493.

documentation.<sup>108</sup> The Directive's Annexes have only been amended following EU enlargement.<sup>109</sup> This is of course important, but not a sufficient substitute for a systematic review of their contents to ensure that those species that require protection are listed and those that no longer do so are downgraded or removed so that limited conservation resources can be used efficiently.

Such a process has in fact been explicitly ruled out by the Commission and their reasons for doing so are questionable. It is stated in the Commission's Fitness Check of the conservation directives that 'it does not appear that the current omissions from the existing Annexes constitute a serious obstacle to achieving the Directives' general objectives'.<sup>110</sup> The study above suggests that this is not the case. Just under 60% of unlisted plant species are in the threatened IUCN categories and have a decreasing population (see Table 5 above). Protecting these seems essential if the Habitats Directive's objective of ensuring biodiversity in the EU, and the wider 2030 Strategy, is to be achieved. The Commission itself, in the same document, states that a review of relevant data 'could lead to significant net additions to the Annexes, with implications for administrative burden'<sup>111</sup> and it is difficult to reconcile this with their belief that the objectives of EU conservation law can nevertheless be achieved.

That the potential administrative burden of expanding the Annexes is highlighted by the Commission and suggests that non-conservation concerns are at the heart of the EU's reluctance to adopt a review mechanism. This is reinforced by the second reason given for not establishing such a process. In the Fitness Check, the Commission refers to, but does not elaborate on, submissions from the Member States and businesses arguing that changes to the Annexes could result in 'legal uncertainty [at] a crucial time when the Natura 2000 network is being finalised'.<sup>112</sup> This claim warrants interrogation. There are comprehensive rules on when sites must be designated under EU law, either because they represent listed habitats or they are important for listed species.<sup>113</sup> Similarly, and notwithstanding the more generous derogation provisions introduced by the Habitats Directive, the level of protection that the Member States are expected to provide to the designated sites is relatively clear. The legal uncertainty raised by stakeholders is likely, therefore, to relate to the application of EU conservation law in specific, real-world cases and the implications of this for economic activities. It is true that the designation of even a very small area can be a major obstacle to otherwise lawful activities and so frequent changes to the Annexes, or listing proposals being made in an ad hoc fashion under a system similar to CITES', could create significant uncertainty for developers and operators.<sup>114</sup> That listing under the Habitats Directive carries greater consequences

108 The discussion in this section focusses on the Habitats Directive, but applies equally to the Wild Birds Directive as well.

109 <[https://ec.europa.eu/environment/nature/legislation/enlargement/index\\_en.htm](https://ec.europa.eu/environment/nature/legislation/enlargement/index_en.htm)> accessed 12 January 2021.

110 European Commission, 'Fitness Check' (n 11) 63.

111 *ibid.*

112 *ibid* 63.

113 art 4 of the Habitats Directive (n 10) and art 4 of the Wild Birds Directive (n 9).

114 In *R (on the application of Newsum) and others v Welsh Assembly Government (No 2)* [2005] EWHC 538 (Admin), eg, the court upheld the defendant's argument that it was necessary to include an entire golf course within an SAC, rather than just the small patches of protected calaminarian grassland that were

than it does under other regimes, due to the unique status of EU law, does not detract from the argument in favour of a proper review mechanism for the Annexes, but is a relevant consideration when deciding how such a system should work. Frequent revisions or an ad hoc system similar to CITES's are neither necessary nor practicable for the Habitats Directive, however. Requiring the Member States to review the status of habitats and species within their territory too frequently would be resource-intensive, thereby reducing their capacity to support actual conservation measures. There also needs to be sufficient time between reviews so that the impact of any measures that are adopted in relation to a certain species or habitat can be properly assessed.

A suitable timeframe for the systematic review of the Annexes is provided by Article 17 of the Habitats Directive. Every six years, the Member States must report on, *inter alia*, the results of the surveillance conducted pursuant to Article 11, which feeds into the Commission's composite report on the state of the Natura 2000 network. Part of this process could be a review of the status of species that are listed in the Annexes and those that are not. Those species that are listed but no longer meet the listing criteria could either be downgraded to Annex V or delisted entirely. It would be important to elaborate on the monitoring requirements in Article 11 to ensure that species do not fall into decline following delisting. Unlisted species that meet the relevant thresholds would be added to the Annexes. This would require the Member States to assess species they may not already be monitoring and so additional resources and stakeholder engagement would be needed. These steps already form part of the EU's 2030 Biodiversity Strategy.<sup>115</sup>

Potentially, more difficult is that the EU has devised its own measure for a species' conservation status and so new assessments will be required for species that are currently not included in the Annexes. An argument can, therefore, be made for replacing 'favourable conservation status' for species, as defined in Article 1(i) of the Habitats Directive, with the IUCN Red List's classifications.<sup>116</sup> In practice, there is a strong correlation, at least in relation to plants, between favourable conservation status and the Red List categories. Those species identified by the IUCN as being in one of the threatened categories tend to have an unfavourable conservation status and vice versa.<sup>117</sup> The criteria for favourable conservation status are also based on similar indicators to the Red List.<sup>118</sup> Nevertheless, there is an important distinction between the two systems. Epstein notes that although underpinned by ecological

present, to ensure that the management regime of the course was compatible with the SAC's conservation objectives. See paras 119–21.

115 European Commission, 'EU Biodiversity Strategy for 2030' (n 2) 16–19.

116 There is no equivalent to the IUCN Red List for habitats, but there are other regimes with wider memberships than the EU that have adopted criteria for specific habitats and natural areas. In relation to wetlands, *eg*, see COP Resolution VII.11, Strategic framework and guidelines for the future development of the List of Wetlands of International Importance (10 May 1999), Appendix A, adopted by parties to the 1971 Convention on Wetlands of International Importance Especially as Waterfowl Habitat, Ramsar, 2 February 1971, in force 21 December 1975, 996 UNTS 245.

117 See, *eg*, Giuseppe Fenu and others, 'Conserving Plant Diversity in Europe: Outcomes, Criticisms and Perspectives of the Habitats Directive Application in Italy' (2017) 26 Biodiversity Conservation 309.

118 See (n 44).

criteria, favourable conservation status is a legal concept, created and defined by law.<sup>119</sup> The IUCN Red List assessments, in contrast, are purely technical in nature, compiled by independent experts using objective criteria.<sup>120</sup> As such, incorporating them as the official measure of the status of European species could aid the Commission in its enforcement of EU conservation law. Krämer points out that in other areas of EU law, technical bodies, such as the European Chemical Agency and European Food Safety Authority, will often reach an objective determination on the facts of a potential infringement and recommend a course of action for the Commission to take as the enforcer of EU law.<sup>121</sup> There is no equivalent body operating in the field of conservation.<sup>122</sup> The IUCN Red List classifications would provide an objective, independent standard that the Commission could use as a central consideration when determining whether a Member State is failing to meet its obligations under EU conservation law.<sup>123</sup> It would create a necessary degree of distance between the Commission as the EU's enforcement agency and the Commission as the Member States' political partner. Using the more objective and independent IUCN criteria in this way would also mitigate the risk of the Member States abusing any new process to revise the Annexes by pushing for the delisting of species that, although still at risk of extinction, have proven particularly difficult or costly to conserve, or are politically inconvenient because their presence is frustrating certain development plans.

It should also be noted that using the IUCN Red List classifications as an independent measure of European species would address concerns that reports produced under Article 17 are already being used as an opportunity by the Member States to promote their own agendas for the implementation of the Directive.<sup>124</sup> While elements of favourable conservation status remain unclear and allow the Member States to falsely locate conservation objectives in wider socioeconomic considerations,<sup>125</sup> facilitated by deliberate recognition of these in the Habitats Directive,<sup>126</sup> the IUCN classifications are unambiguous and so consistent or widespread failure to deliver improvements in species' status could provide sharper a focus on a lack of proper application of EU law by the Member State.

119 Krämer, 'Implementation and Enforcement of the Habitats Directive' (n 75) 221.

120 Lamoreux and others (n 85) 215.

121 Krämer, 'Implementation and Enforcement of the Habitats Directive' (n 75) 244.

122 Krämer suggests that the European Environment Agency could take on this role—*ibid.*

123 This would be similar to the Commission's use of Birdlife International's lists of Important Bird and Biodiversity Areas to challenge Member States' failure to designate sites under the Wild Birds Directive (<<https://www.birdlife.org/worldwide/programme-additional-info/important-bird-and-biodiversity-areas-ibas>> accessed 11 February 2021). See, eg, Case C-97/17 *Commission v Bulgaria* (CJEU: 26 April 2018).

124 Wandesforde-Smith and Watts (n 22) 79, drawing on Andrew Waite, 'The Principle of Equilibrium in Environmental Law: The Example of the Habitats Directive' in Gregory Jones QC (ed), *The Habitats Directive: A Developer's Obstacle Course?* (Hart Publishing 2012) 249–50.

125 Wandesforde-Smith and Watts, *ibid.* See also Lucile Stahl, 'The concept of "conservation objectives" in the Habitats Directive: a Need for a Better Definition?' in Charles-Hubert Born and others (eds), *The Habitats Directive in its EU Environmental Law Context: European Nature's Best Hope?* (Routledge 2015) 61–2.

126 art 2.

Finally, incorporating the IUCN Red List criteria into the Habitats Directive could assist the EU in achieving its ambition to be a global leader in biodiversity policy.<sup>127</sup> It would improve the accessibility of EU biodiversity reports to conservation practitioners and policymakers in other jurisdictions, thereby facilitating comparisons between the EU as a biogeographical region and as a legal system with other areas. This would in turn increase our understanding of the relative effectiveness of different measures being adopted to protect endangered species. At the same time, it would enhance the IUCN Red List as a global conservation tool. Despite being one of the most useful sources of information for conservation planners,<sup>128</sup> the utility of the Red List is limited by a lack of resources to support the regular re-evaluation of species.<sup>129</sup> Requiring the Member States to frame their species' reports in terms of the IUCN criteria would mean that European species would be the subject of regular evaluations, allowing trends to be properly tracked and adjustments to strategies to be made.<sup>130</sup>

Introducing a review mechanism for the Annexes and adopting a globally recognised measure for assessing a species' conservation status would go some way in enhancing the Habitats Directive as a conservation mechanism. It would not, however, directly address its apparent inability to positively impact the conservation status of Europe's flora highlighted by this article. Although there are some exceptions, data provided by the Member States indicate that the areas important for listed plant species tend to be included within Natura 2000.<sup>131</sup> Further measures to complete or enhance the network will, therefore, be of limited benefit to plants.<sup>132</sup> More proactive steps, targeted at individual species and beyond the mere designation of land, are needed to support the recovery of European flora.

In particular, species action plans should be created for the plants that are most at risk of extinction. The action plans that have been adopted for animals provide a template for these. For the common midwife toad, actions on, inter alia, habitat management, supporting population recovery, scientific research and public awareness are being taken, with timescales and key stakeholders identified for each.<sup>133</sup> Similar measures, taking account of the target species' ecology and the threats facing them, could be developed for particular plant species. One important issue to consider, for example, is space, as this is a key element of a species' ecology but also relevant in land-use planning and wider socioeconomic policies. Plants do not need as much

127 European Commission, 'EU Biodiversity Strategy for 2030' (n 2) 20–2.

128 Lamoreux and others (n 85).

129 Rondinini and others (n 105).

130 This reflects ideas of adaptive management in conservation, ie that it should be seen as a circular learning process in which ongoing experiences of a project are used to inform its development. See Amos (n 20) ch 9.

131 <<https://www.eea.europa.eu/themes/biodiversity/state-of-nature-in-the-eu/article-17-national-summary-dashboards/natura-2000-coverage>> accessed 12 January 2021.

132 This sets the EU apart from other regions. In the USA, eg, most protected areas are located in the west of the country but the plants most in need for protection are in the east—Clinton Jenkins and others, 'US Protected Lands Mismatch Biodiversity Priorities' (2015) 112 *Proceedings of the National Academy of Sciences of the United States of America* 5081.

133 European Commission, 'Action Plan for the Conservation of the Common Midwife Toad (*Alytes obstetricans*) in the European Union' (2012) <[https://ec.europa.eu/environment/nature/conservation/species/action\\_plans/index\\_en.htm](https://ec.europa.eu/environment/nature/conservation/species/action_plans/index_en.htm)> accessed 12 February 2021.

space as animals and accounting for this will be crucial if plant diversity is to be conserved. A 2014 study on the flora of the south-eastern Iberian Peninsula, for example, found that most areas important for plant diversity in this region are unprotected. The proposed remedy is a series of micro-reserves, the rationale being that a network of small areas covering a lot of biodiversity would be more beneficial than one large area with relatively poor biodiversity.<sup>134</sup> It would be important to maintain the micro-reserves' ecological connections with the wider landscape, as with any protected area, and they would need to be close enough to each other to allow for genetic exchange,<sup>135</sup> but this is one example of how targeted species action plans for plants could be developed.

Plants should also be an equal priority as animals for the Commission when it comes to enforcement. As noted above, there has been a relative lack of action against the Member States for failing to implement the Habitats Directive in practice.<sup>136</sup> The EU recognises this and states that, as part of the 2030 Biodiversity Strategy, 'enforcement will focus on completing the Natura 2000 network, the effective management of all sites, species-protection provisions, and species and habitats that show declining trends'.<sup>137</sup> There are numerous plant species currently under threat because the Member States are failing to apply EU-derived conservation law. The aforementioned *Acis nicaeensis* is just one example. This plant, the so-called French snowflake, is an increasingly rare bulb native to south-eastern France. France's Article 17 report for 2013–18 lists *A. nicaeensis* as being in an unfavourable conservation status.<sup>138</sup> The IUCN classifies it as being endangered with a decreasing population, based on a 2015 assessment. A survey of *A. nicaeensis* populations shows that the main threats to this species are urbanisation and land-use change.<sup>139</sup> In other words, the circumstances in which *A. nicaeensis* finds itself are similar to those that led the Commission to take enforcement action against France in relation to the European hamster.<sup>140</sup> If the EU is to deliver on its 2030 Strategy, responding to such cases will be essential.

## 5. CONCLUSION

The purpose of this study has been to contribute to our understanding of the effectiveness of the Habitats Directive in terms of its ability to improve the conservation status of endangered species. Comparing the status of species that are listed in the Annexes of the Habitats Directive with those that are not suggests that the Directive has had only a limited positive impact on Europe's plants. In relation to conservation

134 Antonio Mendoza-Fernández and others, 'Threatened Plants of Arid Ecosystems in the Mediterranean Basin: A Case Study of the South-eastern Iberian Peninsula' (2014) 48 *Oryx* 548.

135 Peter Ashton, 'Conservation of Biological Diversity in Botanical Gardens' in Edward Wilson (ed), *Biodiversity* (National Academy Press 1988) 269.

136 See (n 75).

137 European Commission, 'EU Biodiversity Strategy for 2030' (n 2) 16.

138 Annex I: Article 17 National Summary Factsheet—France (June 2020), 47, <<https://circabc.europa.eu/faces/jsp/extension/wai/navigation/container.jsp>> accessed 12 January 2020.

139 Marine Pouget and others, 'Conservation Unit Allows Assessing Vulnerability and Setting Conservation Priorities for a Mediterranean Endemic Plant Within the Context of Extreme Urbanization' (2017) 26 *Biodiversity Conservation* 293, 298.

140 Case C-383/09 (n 76) para 14.

status, proportionally more species that are listed by the Directive are in one of the three threatened IUCN categories. Similarly, over a third of listed species have a declining population status, more than double the number of unlisted species. These statistics tell us that although mostly targeting the correct species, in the three decades since the Habitats Directive was adopted it has not delivered significant improvements in the conservation status of European flora.

An important caveat to these findings is that the study compares the status of species across Europe, not just within the EU. Therefore, it is possible that listed plants are generally thriving in the EU but their overall conservation status is being undermined because of a lack of sufficient protection in areas outside the territory of the Member States. Comparing the status of priority species, ie those that are primarily found in the EU, with non-priority species, however, indicates that this is not the case. Instead, the opposite argument can be made. Although the population trends between priority and non-priority species are broadly similar, priority species are more likely to be in one of the IUCN's three threatened categories. The study presented in this article is based on a single measure—the respective status of listed and unlisted plant species—but its findings raise important questions over the Habitats Directive's contribution in terms of improving species' conservation status beyond the level that might be achieved through purely domestic legislation.

More research is needed to determine the true value of the Habitats Directive in this regard. A similar study on listed and unlisted animals could show that the Habitats Directive has had a more significant positive impact on European fauna. At the very least, however, this study reinforces the perception of bias against plants seen in the design and implementation of EU conservation law. It is ecologically incoherent for the Commission's guidance on species protection to be deliberately limited to animals. The conservation of plants raises distinct challenges that must be accounted for through specific, targeted guidance and, for those species most at risk of extinction, action plans. In its renewed focus on enforcing EU conservation law, the Commission must also treat plants as an equal priority as animals. As the example of *A. nicaeense* illustrates, there are protected European plant species that are under increasing threat from the Member States' apparent failure to fulfil their conservation obligations under EU law.

In terms of wider reforms, it is essential that a mechanism for the systematic review of the contents of the Annexes is established. This will ensure that they reflect the current status of European biodiversity and not what it was in 1992, thereby allowing for the more efficient use of limited conservation resources and the protection of species that have declined since the Habitats Directive was adopted. To facilitate this, the EU criteria used to determine whether a species has a favourable conservation status should be replaced with the IUCN Red List categories relating to extinction risk. This would also enable more direct comparisons to be made between the EU and other regions and regimes, as well as enhance the IUCN Red List as a conservation tool.

The past 20 years have seen the EU and the wider international community fail to meet their biodiversity ambitions. The EU's 2030 Strategy for Biodiversity is an important agenda to address past weaknesses in their approach, but without reforms

to the Habitats Directive so that it is truly indispensable to European conservation efforts, genuine progress in restoring biodiversity in the EU will remain elusive.

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#### **CONFLICT OF INTEREST STATEMENT**

None declared.