

Domestic Cats (*Felis catus*) and European Nature Conservation Law—Applying the EU Birds and Habitats Directives to a Significant but Neglected Threat to Wildlife

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ABSTRACT

Free-ranging domestic cats (*Felis catus*) impact biodiversity through predation, disturbance, competition, disease and hybridisation. Scientific knowledge regarding these impacts has recently increased. This article interprets the European Union (EU) Birds and Habitats Directives (Nature Directives) in light of this knowledge. The outcome indicates that various obligations in the Directives, particularly concerning Natura 2000 sites and the generic protection of birds and other species, have significant implications for the management of free-ranging domestic cats. Regarding (unowned) stray and feral cats, these must be removed or controlled when they pose a threat to protected species and/or sites. Regarding (owned) pet and farm cats, the Nature Directives require EU Member States to ensure that letting cats roam free outdoors is forbidden and effectively prevented. Current practice across the EU does not yet conform to these requirements. Whereas the article identifies and assesses various factors that may explain this compliance gap, legally valid justifications appear absent.

KEYWORDS: EU Birds Directive, EU Habitats Directive, Natura 2000, domestic cat (*Felis catus*), biodiversity, invasive alien species

1. INTRODUCTION

‘The widespread dissemination of cats in the woods and in the open or farming country, and the destruction of birds by them, is a much more important matter than most people suspect, and is not to be lightly put aside’, observed Edward Howe Forbush more than a century ago.¹ Only in the last fifteen years, however, have the sheer magnitude and variety of the impacts exercised by domestic cats (*Felis catus*) on birds and other wildlife been brought into sharp focus, through a series of

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1 Edward H Forbush, *The Domestic Cat: Bird Killer, Mouser and Destroyer of Wild Life, Means of Utilizing and Controlling It* (Wright & Potter Printing Co. 1916) 29.

scientific studies which show that cats are amongst the ‘most ubiquitous and environmentally damaging invasive predators on Earth’.² Consequently, domestic cat management is increasingly coming to the fore as an ‘international challenge in conservation science, policy, and practice’.³

In this light, it is timely to ask to what extent current nature conservation legislation actually requires the impacts of free-ranging domestic cats to be prevented or remedied, and to see how much has changed since the days of Forbush, who commented:

We now legislate to protect birds, but place no limit on the increase and activities of their most destructive . . . enemy. A man is liable to a fine if he kills a bird, but he may with impunity keep any number of cats to kill birds . . .⁴

In the present article, we address this question with regard to the principal pieces of European Union (EU) nature conservation legislation, ie Directive 2009/147/EC on the conservation of wild birds (Birds Directive)⁵ and Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (Habitats Directive)⁶—known together as the ‘Nature Directives’.

The article begins by reviewing the impacts of domestic cats on European wildlife, based on existing scientific literature. This is followed by an interpretive analysis of the EU Nature Directives in light of those facts, to determine what the Directives require from EU Member States with regard to domestic cats. Finally, the article briefly identifies and assesses factors that might influence and impair the application of the obligations imposed by the Nature Directives.

The article focuses on all domestic cats which spend part or all of their life outdoors beyond the full control of humans, using the term ‘free-ranging’ as encompassing all such cats, whether owned by people or not. This includes urban pets allowed to roam outdoors, farm cats, stray cats and ‘feral cats’—ie domestic cats that have come to live completely independently of humans. Whereas the scope of the analysis below is confined to nature conservation law, it should be noted that many other areas of law are of relevance to the management of free-ranging domestic cats, including public health law, tort law and animal welfare law.

Likewise, before proceeding attention should be drawn to the existence of various other international and EU legal instruments for nature conservation that are pertinent to free-ranging cat management in Europe.⁷ An EU instrument of potential future relevance is Regulation 1143/2014 on the prevention and management of the

2 Scott R Loss and Peter P Marra, ‘Population Impacts of Free-ranging Domestic Cats on Mainland Vertebrates’ (2017) 15 *Frontiers in Ecology and the Environment* 502, 502.

3 Sarah L Crowley, Martina Cecchetti and Robbie A McDonald, ‘Hunting Behaviour in Domestic Cats: An Exploratory Study of Risk and Responsibility among Cat Owners’ (2019) 1 *People and Nature* 18, 19.

4 Forbush (n 1) 97.

5 Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds [2009] OJ L20/7 (hereinafter *Birds Directive*).

6 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora [1992] OJ L206/7 (hereinafter *Habitats Directive*).

7 Arie Trouwborst, Phillipa McCormack and Elvira Martínez Camacho, ‘Domestic Cats and their Impacts on Biodiversity – A Blind Spot in the Application of Nature Conservation law’ (submitted for publication).

introduction and spread of invasive alien species (IAS Regulation).⁸ Relevant treaties include the 1979 Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention);⁹ 1992 Convention on Biological Diversity (CBD);¹⁰ 1995 Protocol concerning Specially Protected Areas and Biological Diversity in the Mediterranean;¹¹ 1995 Agreement on the Conservation of African-Eurasian Migratory Waterbirds (AEWA);¹² and 2001 Agreement on the Conservation of Albatrosses and Petrels (ACAP).¹³ EU Member States which are parties to these treaties must apply them alongside their EU law obligations, and the treaties may also inform the interpretation and application of EU law itself. Beyond nature conservation law, EU and national policies addressing adverse impacts of cats must obviously also comply with pertinent primary EU law and international treaties to which the EU is a party.

2. *FELIS CATUS*: A TOP-RANKING INVASIVE ALIEN SPECIES

Descending from wildcats (*Felis silvestris*), cats were probably domesticated around 10,000 years ago in the Fertile Crescent, and have since travelled with people to most corners of the world.¹⁴ Cats are independent and opportunistic, adaptive in terms of food, habitat and climate, prolific breeders, quite popular as mousers and even more popular as pets. Forbush's description of their inimitable appeal is hardly dated:

The cat, of all animals, is in some respects the most intimate companion of man. It is more closely identified with indoor life and the cheerful domestic hearth than is any other animal. . . . Its independent character and its graceful, quiet movements, . . . [i]ts elegance of form, beauty of coloring, daintiness of habit, and, above all, the delightful, playful activity of its young make it a welcome fireside companion throughout the civilized world, and the playmate of innocent children in countless happy homes.¹⁵

- 8 Regulation (EU) 1143/2014 of the European Parliament and of the Council of 22 October 2014 on the prevention and management of the introduction and spread of invasive alien species [2014] OJ L317/35 (hereinafter IAS Regulation). The various obligations to address invasive alien species set out in the Regulation will only apply to domestic cats once the species is included in the List of Invasive Alien Species of Union Concern administered under the Regulation. The inclusion of species in the List depends on the consent of a majority of EU Member States (IAS Regulation, arts 4 and 27).
- 9 Convention on the Conservation of European Wildlife and Natural Habitats (1979) ETS 104 (hereinafter Bern Convention).
- 10 Convention on Biological Diversity (1992) 1760 UNTS 79 (hereinafter CBD).
- 11 Protocol (to the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean) concerning Specially Protected Areas and Biological Diversity in the Mediterranean (1995) 6 Yearbook of International Environmental Law 887.
- 12 Agreement on the Conservation of African-Eurasian Migratory Waterbirds (1995) 2365 UNTS 251.
- 13 Agreement on the Conservation of Albatrosses and Petrels (2001) 2258 UNTS 257.
- 14 Carlos A Driscoll and others, 'The Near Eastern Origin of Cat Domestication' (2007) 317 Science 519; Claudio Ottoni and others, 'The Palaeogenetics of Cat Dispersal in the Ancient World' (2017) 1 Nature Ecology and Evolution 0139.
- 15 Forbush (n 1) 7.

Thanks to the aforementioned traits, domestic cats currently live in and around many houses and farms, and in numerous places also in free-ranging populations (originating from stowaways, escapees and intentionally released cats), and many of these have become ‘feral’ in the sense of being fully independent of humans.

In none of these places are domestic cats a ‘native’ species. As a domesticated species, they ‘have no native range’¹⁶ and are alien species wherever they occur. ‘Alien species’, according to the CBD Conference of the Parties (COP), are species introduced through ‘human agency, indirect or direct’ into areas which do not constitute their ‘natural range’.¹⁷ When they threaten native biodiversity they are also considered ‘invasive’.¹⁸ The IAS Regulation contains similar definitions.¹⁹ The widespread and significant adverse impacts of domestic cats on native wildlife around the globe make them a quintessential and, indeed, one of the ‘world’s worst invasive alien species’.²⁰ Although this insight itself is not new,²¹ the extent of its scientific documentation is, as will become clear below.

One of the factors involved is that pet cats tend to obtain food, shelter and health-care from their owners, and many stray cats also obtain some food and/or other care (eg vaccinations) from people. Owing to such ‘subsidies’—which lessen or remove the constraints of limited food availability, disease and intraspecific competition as compared to a wild situation—domestic cats tend to occur in densities which are many times higher than those of similar-sized wild carnivores such as wildcats.²²

Domestic cats impact wildlife through predation, competition, disturbance, hybridisation and transmission of diseases, and combinations thereof. These impacts are increasingly well documented, and do not just affect individual animals, but also populations and species, up until the definitive impact that is extinction. Worldwide, domestic cats have been implicated in the extinction of at least 2 reptile species, 21 mammal species and 40 bird species—ie 26% of all known contemporary extinctions in these species groups.²³ Currently, domestic cats are posing a threat to a minimum of 367 species which are at risk of extinction.²⁴ In a global ranking of alien species

16 Loss and Marra (n 2) 502.

17 CBD COP Decision VI/23 (2002) Annex.

18 *ibid.*

19 IAS Regulation, art 3.

20 Sarah Lowe and others, *100 of the World’s Worst Invasive Alien Species: A Selection from the Global Invasive Species Database* (Invasive Species Specialist Group 2000).

21 As Forbush (n 1) 106 noted, in 1916: ‘The cat, an introduced animal, . . . has disturbed the biological balance and has become a destructive force among native birds and mammals.’

22 John S Coleman and Stanley A Temple, ‘Rural Residents’ Free-ranging Domestic Cats: A Survey’ (1993) 21 *Wildlife Society Bulletin* 381; Kevin R Crooks and Michael E Soulé, ‘Mesopredator Release and Avifaunal Extinctions in a Fragmented System’ (1999) 400 *Nature* 563; Victora Sims and others, ‘Avian Assemblage Structure and Domestic Cat Densities in Urban Environments’ (2008) 14 *Diversity and Distributions* 387; Tanja Beutel and others, ‘Spatial Patterns of Co-occurrence of the European Wildcat *Felis silvestris silvestris* and Domestic Cats *Felis silvestris* in the Bavarian Forest National Park’ (2017) *Wildlife Biology*; Sarah Legge and others, ‘Enumerating a Continental-Scale Threat: How Many Feral Cats are in Australia?’ (2017) 206 *Biological Conservation* 293.

23 Tim S Doherty and others, ‘Invasive Predators and Global Biodiversity Loss’ (2016) 113 *Proceedings of the National Academy of Sciences of the USA* 11261.

24 *ibid.*

threatening the greatest numbers of vertebrates, domestic cats occupy the 3rd position.²⁵

The biodiversity impacts of domestic cats have been felt especially strongly on islands, especially where the native (and often endemic) fauna is ill-adapted to mammalian predators.²⁶ Yet, such impacts are by no means limited to islands. Due to domestic cats' large numbers, subsidised high densities and other aforementioned traits, they can severely impact biodiversity on 'mainlands' too, ie continents and large islands such as the British Isles.²⁷ An expert report written for the European Commission shows that also on a European scale, domestic cats rank in the top-three of most harmful alien species.²⁸

The nature and dimensions of the various impacts that free-ranging domestic cats exercise on wildlife, and available remedies, are now reviewed in some detail, as a solid grasp of the facts is crucial in order to distill what it is that the Nature Directives require in this regard.

2.1 Predation

Predation is the most direct way in which domestic cats influence wildlife. As opportunistic hunters, cats prey on a wide range of generally small animals, including birds, mammals, reptiles, amphibians, fish and invertebrates. All feral cats hunt; as do the great majority of other unowned cats;²⁹ and around 50–80% of owned cats which are allowed to roam.³⁰ Typically, the latter only bring a fraction of hunted prey to the house or farm where they live.³¹ Predation rates and species affected by owned cats will depend *inter alia* on location, time of year, condition and age of cats (with young cats generally hunting more), the quality of care by owners, the use of anti-predation devices like bells and bibs and the time(s) of day they are allowed outside.³²

25 Celine Bellard, Piero Genovesi and Jonathan M Jeschke, 'Global Patterns in Threats to Vertebrates by Biological Invasions' (2016) 283 *Proceedings of the Royal Society B* 20152454.

26 Felix M Medina and others, 'A Global Review of the Impacts of Invasive Cats on Island Endangered Vertebrates' (2011) 17 *Global Change Biology* 3503; Elsa Bonnaud and others, 'The Diet of Feral Cats on Islands: A Review and a Call for More Studies' (2011) 13 *Biological Invasions* 581; Manuel Nogales and others, 'Feral Cats and Biodiversity Conservation: The Urgent Prioritization of Island Management' (2013) 63 *BioScience* 804; Doherty and others (n 23); Bellard, Genovesi and Jeschke, *ibid*.

27 Loss and Marra (n 2).

28 Piero Genovesi, Lucilla Carnevali and Riccardo Scalerà, *The Impact of Invasive Alien Species on Native Threatened Species in Europe* (ISPRA and ISSG 2015).

29 Over 80%, according to Scott R Loss, Tom Will and Peter P Marra, 'The Impact of Free-Ranging Domestic Cats on Wildlife of the United States' (2013) 4 *Nature Communications* 1396.

30 *ibid*; Kerrie Anne T Loyd and others, 'Quantifying Free-Roaming Domestic Cat Predation Using Animal-Borne Video Cameras' (2013) 160 *Biological Conservation* 183; Scott R Loss and others, 'Responding to Misinformation and Criticisms regarding United States Cat Predation Estimates' (2018) 20 *Biological Invasions* 3385.

31 For example, 23% according to Loyd and others, *ibid*; 10% according to Dagny Krauze-Gryz, Jakub Gryz and Michał Żmihorski, 'Cats Kill Millions of Vertebrates in Polish Farmland Annually' (2019) 17 *Global Ecology and Conservation* e00516.

32 See eg David G Barratt, 'Predation by House Cats, *Felis catus* (L.), in Canberra, Australia, II – Factors Affecting the Amount of Prey Caught and Estimates of the Impact on Wildlife' (1998) 25 *Wildlife Research* 475; Michael Woods, Robbie A McDonald and Stephen Harris, 'Predation of Wildlife by Domestic Cats *Felis catus* in Great Britain' (2003) 33 *Mammal Review* 174; Roland W Kays and Amielle

Domestic cats' predation impact has been quantified for several species groups in various countries in Europe and beyond, and 'even when killing behaviour is not universal, large numbers of cats inevitably kill large numbers of wild animals'.³³ In Canada, predation by domestic cats (from feral to pet cats) is 'probably the largest human-related source of bird mortality', with an estimated 100–350 million birds killed annually.³⁴ In Australia, each year domestic cats are estimated to kill an average 377 million birds³⁵ and 649 million reptiles.³⁶ Statistics are even worse for the USA, where massive numbers of domestic cats annually end the lives of 95–299 million amphibians, 258–822 million reptiles, 1.3–4.0 billion birds and 6.3–22.3 billion mammals.³⁷ Also here, this makes cats the biggest cause of direct anthropogenic mortality for birds and small mammals in the USA, bigger than all other sources—eg poisons, pesticides, collisions with wind mills, powerlines, buildings and vehicles—added together.³⁸

In the UK, during a five-month survey period, pet cats were estimated to have brought home 57 million mammals, 27 million birds and 5 million reptiles and amphibians—which implies that they killed several times these numbers.³⁹ Another study, using data from bird ringing programmes in France and Belgium to assess garden bird predation by domestic cats, reported such predation as a leading cause of mortality, on a par with window collisions, and also that cat-caused mortality had increased by 50% from 2000 to 2015.⁴⁰ For the Netherlands, a technical report produced a national estimate of 141 million animals killed by domestic cats on a yearly basis, with owned cats responsible for nearly two-thirds.⁴¹ In Finland, where fewer people and cats live, a study estimated that over 1 million prey animals are taken by free-ranging domestic cats per month, at least 144,000 of which are birds.⁴² Yet

A DeWan, 'Ecological Impact of Inside/Outside House Cats Around a Suburban Nature Preserve' (2004) 7 *Animal Conservation* 273; Yolanda van Heezik and others, 'Do Domestic Cats Impose an Unsustainable Harvest on Urban Bird Populations?' (2010) 143 *Biological Conservation* 121; Eduardo A Silva-Rodríguez and Kathryn E Sieving, 'Influence of Care of Domestic Carnivores on their Predation on Vertebrates' (2011) 25 *Conservation Biology* 808; Dagny Krauze-Gryz, Michał Żmihorski and Jakub Gryz, 'Annual Variation in Prey Composition of Domestic Cats in Rural and Urban Environment' (2017) 20 *Urban Ecosystems* 945.

33 Crowley, Cecchetti and McDonald (n 3) 19.

34 Peter P Blancher, 'Estimated Number of Birds Killed by House Cats (*Felis catus*) in Canada' (2013) 8 *Avian Conservation Ecology* 3; see also Anna M Calvert and others, 'A Synthesis of Human-Related Avian Mortality in Canada' (2013) 8 *Avian Conservation Ecology* 11.

35 John CZ Woinarski and others, 'How Many Birds Are Killed by Cats in Australia?' (2017) 214 *Biological Conservation* 76.

36 John CZ Woinarski and others, 'How Many Reptiles Are Killed by Cats in Australia?' (2018) 45 *Wildlife Research* 247.

37 Loss, Will and Marra (n 29).

38 *ibid*; Travis Longcore and others, 'An Estimate of Avian Mortality at Communication Towers in the United States and Canada' (2012) 7 *PLOS One* e34025; Scott R Loss and others, 'Direct Mortality of Birds from Anthropogenic Causes' (2015) 46 *Annual Review of Ecology, Evolution and Systematics* 99.

39 Woods, McDonald and Harris (n 32).

40 Roman Pavisse, Didier Vangeluwe and Philippe Clergeau, 'Domestic Cat Predation on Garden Birds: An Analysis from European Ringing Programmes' (2019) 107 *Ardea* 103.

41 Wim Knol, *Verwilderde Huiskatten: Effecten op de Natuur in Nederland*, KNJV Report Nr 15-01 (Koninklijke Nederlandse Jagersvereniging 2015).

42 Kaarina Kauhala, Kati Talvitie and Timo Vuorisalo, 'Free-Ranging House Cats in Urban and Rural Areas in the North: Useful Rodent Killers or Harmful Bird Predators?' (2015) 64 *Folia Zoologica* 45.

another study focused on farm cats in Poland and estimated that these kill 136 million birds and 583 million mammals around Polish farms per year.⁴³

Uncertainty remains concerning precise predation rates and numbers, and concerning the precise magnitude of these impacts on the populations of prey species, given *inter alia* the difficulty of determining when predation is compensatory—ie cats killing birds that would have died anyway—and when it is additive.⁴⁴ Nonetheless, the preceding observations and the very numbers involved patently suggest that such population-level impacts are common, and not only on islands. Many such population impacts have indeed been documented—not just for mammals and birds but also, for instance, for lizards.⁴⁵ According to a recent review, there is ‘overwhelming evidence demonstrating that cats affect mainland vertebrate populations’.⁴⁶ At least 15 studies demonstrate domestic cat predation impacts on populations of mainland vertebrates in Europe, North America, Australia and New Zealand.⁴⁷ A 1987 study of bird predation in an English village already revealed that cats were responsible for at least 30% of house sparrow (*Passer domesticus*) deaths.⁴⁸ Some studies distinctly suggest that predation rates of studied bird species at sites in the UK—eg Eurasian wrens (*Troglodytes troglodytes*), dunnocks (*Prunella modularis*) and great tits (*Parus major*)—and in the USA are so high that the populations in question have been converted into ‘sinks’, requiring continuous replenishment from areas with fewer cats in order to persist.⁴⁹ Another study showed an inverse relationship between free-ranging cat density and bird species richness in urban areas across the UK.⁵⁰

2.2 Other Impacts: Disturbance, Competition, Disease, Hybridisation

Whereas biodiversity impacts other than predation have been studied to a lesser degree, they are not necessarily less influential. Prey species can be indirectly affected by domestic cats through disturbance or fear effects. Although such effects are harder

43 Krauze-Gryz, Gryz and Żmihorski (n 31).

44 Andrew P Beckerman, Mike Boots and Kevin J Gaeston, ‘Urban Bird Declines and the Fear of Cats’ (2007) 10 *Animal Conservation* 320; Philip J Baker and others, ‘Cats About Town: Is Predation by Free-Ranging Pet Cats (*Felis catus*) Likely to Affect Urban Bird Populations?’ (2008) 150 *Ibis* 86; Loss and Marra (n 2).

45 Binbin Li and others, ‘Effects of Feral Cats on the Evolution of Anti-Predator Behaviours in Island Reptiles: Insights from an Ancient Introduction’ (2014) 281 *Proceedings of the Royal Society B* 20140339; Danielle Stokeld and others, ‘Rapid Increase of Australian Tropical Savanna Reptile Abundance Following Exclusion of Feral Cats’ (2018) 225 *Biological Conservation* 213; Woinarski and others (n 36).

46 Loss and Marra (n 2) 507.

47 *ibid.*

48 Peter B Churcher and John H Lawton, ‘Predation by Domestic Cats in an English Village’ (1987) 212 *Journal of Zoology* 439.

49 Baker and others (n 44); Anne L Balogh, Thomas B Ryder and Peter P Marra, ‘Population Demography of Gray Catbirds in the Suburban Matrix: Sources, Sinks and Domestic Cats’ (2011) 152 *Journal of Ornithology* 717; Rebecca L Thomas, Mark DE Fellowes and Philip J Baker, ‘Spatio-Temporal Variation in Predation by Urban Domestic Cats (*Felis catus*) and the Acceptability of Possible Management Actions in the UK’ (2012) 7 *PLOS One* 349369; Sarah B Smith and others, ‘Demography of a Ground Nesting Bird in an Urban System: Are Populations Self-Sustaining?’ (2016) 19 *Urban Ecosystems* 577; see also Loss and Marra (n 2).

50 Sims and others (n 22).

to quantify than direct predation effects, empirical studies involving several bird species—eg blackbirds (*Turdus merula*) and barn swallows (*Hirundo rustica*)—have shown significant adverse impacts of mere cat presence on feeding and defence behaviours, stress responses, energy income and body condition, reproductive investment and output and vulnerability to other predators.⁵¹ To illustrate, a study using taxidermied cat models found that briefly confronting blackbirds with such a model near their nest reduced subsequent feeding of the young by one-third, and notably augmented the risk of subsequent nest raiding by corvids or other predators.⁵² The available evidence indicates that fear effects can actually exercise a greater influence on prey populations than predation itself.⁵³ As one study showed, even when urban songbird predation mortality from domestic cats is no greater than 1%, fear effects from the same cats can still reduce bird abundance by 95%.⁵⁴

Indirect impacts also result from domestic cats competing with native species for the same food, space or shelter. Regarding food, for instance, all the billions of prey animals consumed by domestic cats are not then available to native avian, mammalian and reptilian predators.⁵⁵ To illustrate, a UK study revealed an inverse correlation between outdoor cat abundance and the density of wood mice (*Apodemus sylvaticus*), an all-round prey species sought after by various native predator species.⁵⁶

The transmission of diseases is another way in which free-ranging domestic cats can impact native fauna. Cat-transmitted diseases like toxoplasmosis, rabies and feline leukemia can be a significant cause of mortality for a range of vertebrate species, from birds to the Iberian lynx (*Lynx pardinus*), and can even affect marine mammals when persistent pathogens from cat faeces reach the sea in run-off.⁵⁷

- 51 Colin Bonnington, Kevin J Gaston and Karl L Evans, 'Fearing the Feline: Domestic Cats Reduce Avian Fecundity through Trait-Mediated Indirect Effects that Increase Nest Predation by Other Species' (2013) 50 *Journal of Applied Ecology* 15; Javier Balbontín and Anders P Møller, 'Environmental Conditions During Early Life Accelerate the Rate of Senescence in a Short-Lived Passerine Bird' (2015) 96 *Ecology* 948; Piotr Tryjanowski and others, 'Who Started First? Bird Species Visiting Novel Birdfeeders' (2015) 5 *Scientific Reports* 11858; Kauhala, Talvitie and Vuorisalo (n 42); Todd M Freeberg, DL Book and Rebecca L Weiner, 'Foraging and Calling Behavior of Carolina Chickadees (*Poecile carolinensis*) in Response to the Head Orientation of Potential Predators' (2016) 122 *Ethology* 10; see also Loss and Marra (n 2).
- 52 Bonnington, *ibid*.
- 53 Evan L Preisser, Daniel I Bolnick and Michael F Benard, 'Scared to Death? The Effects of Intimidation and Consumption in Predator-Prey Interactions' (2005) 86 *Ecology* 501; Loss and Marra (n 2).
- 54 Beckerman, Boots and Gaeston (n 44).
- 55 William G George, 'Domestic Cats as Predators and Factors in Winter Shortages of Raptor Prey (1974) 86 *Wilson Bulletin* 384; Dagny Krauze-Gryz and others, 'The Good, the Bad, and the Ugly: Space Use and Intraguild Interactions among Three Opportunistic Predators – Cat (*Felis catus*), Dog (*Canis lupus familiaris*), and Red Fox (*Vulpes vulpes*) – under Human Pressure' (2012) 90 *Canadian Journal of Zoology* 1402; Loss and Marra (n 2).
- 56 Philip J Baker and others, 'Factors Affecting the Distribution of Small Mammals in an Urban Area' (2003) 33 *Mammal Review* 95.
- 57 William J Hartley and Jitender P Dubey, 'Fatal Toxoplasmosis in Some Native Australian Birds' (1991) 3 *Journal of Veterinary Diagnostic Investigation* 167; Thierry M Work and others, 'Fatal Toxoplasmosis in Free-Ranging Endangered 'Alala from Hawaii' (2000) 36 *Journal of Wildlife Diseases* 205; Jitender P Dubey, 'A Review of Toxoplasmosis in Wild Birds' (2002) 106 *Veterinary Parasitology* 121; Patricia A Conrad and others, 'Transmission of *Toxoplasma*: Clues from the Study of Sea Otters as Sentinels of *Toxoplasma gondii* Flow into the Marine Environment' (2005) 35 *International Journal for Parasitology*

A final way in which domestic cats can affect native biodiversity is hybridisation, which can result when domestic cats mate with wildcats or other wild cat species. In Europe, hybridisation with domestic cats poses a real risk to wildcat conservation in areas where the latter's densities are low, as documented for Scotland⁵⁸ and Hungary.⁵⁹

Notably, different direct and indirect impacts from domestic cats often occur simultaneously.⁶⁰ For instance, domestic cats not only affect wildcats through hybridisation but also through competition and disease, and many mammal and bird species suffer the combined impacts of direct predation and indirect fear effects.⁶¹

2.3 Preventing and Mitigating Impacts

A variety of lethal and non-lethal methods exist to remove feral and other free-ranging cats from the landscape, such as shooting, poisoned baits and live trapping. Feral cats have already been successfully eradicated from many islands,⁶² often with notable results for native fauna.⁶³ Other measures that can mitigate or remove some of the impacts of free-ranging domestic cats on biodiversity include fencing, vaccination, neutering, equipping cats with anti-predation devices, limiting pets' outdoor hours, limiting the number of cats per owner and cat-free zones.⁶⁴

Most of these mitigation measures come with limitations, however. For instance, using fences to keep cats out of sensitive natural areas or people's gardens, or inside their owners' gardens, can have the undesirable side-effects of blocking movement of native species too, and can be costly at large scales. Other measures typically address just one or two of the cats' impacts, and only to a limited degree. Microchipping, neutering, vaccination and overall regulation of cat breeding and ownership can help prevent establishment or increase of stray and feral populations, but do not remove predation and fear effects. Trap-neuter-release programmes for stray cats are

1155; Marina L Meli and others 'Feline Leukemia Virus Infection: A Threat for the Survival of the Critically Endangered Iberian Lynx (*Lynx pardinus*)' (2010) 134 *Veterinary Immunology and Immunopathology* 61; Richard W Gerhold and David A Jessup, 'Zoonotic Diseases Associated with Free-Roaming Cats' (2013) 60 *Zoonoses Public Health* 189; Loss and Marra (n 2).

- 58 Alexandra L Hubbard and others, 'Is Survival of European Wildcats *Felis silvestris* in Britain Threatened by Interbreeding with Domestic Cats?' (1992) 61 *Biological Conservation* 203; Mark Beaumont and others, 'Genetic Diversity and Introgression in the Scottish Wildcat' (2001) 10 *Molecular Ecology* 319; David W Macdonald and others, 'Reversing Cryptic Extinction: The History, Present, and Future of the Scottish Wildcat' in David W Macdonald and Andrew J Loveridge (eds), *Biology and Conservation of Wild Felids* (OUP 2010) 471.
- 59 Massimo Pierpaoli and others, 'Genetic Distinctions of Wildcat (*Felis silvestris*) Populations in Europe, and Hybridization with Domestic Cats in Hungary' (2003) 12 *Molecular Ecology* 2585.
- 60 Loss and Marra (n 2).
- 61 For example, Themb'Alilahwa AM Mahlaba and others, 'Domestic Cats and Dogs Create a Landscape of Fear for Pest Rodents Around Rural Homesteads' (2017) 12 *PLOS One* e0171593.
- 62 Karl J Campbell and others, 'Review of Feral Cat Eradications on Islands' in C Richard Veitch, Michael N Clout and David R Towns (eds), *Island Invasives: Eradication and Management* (IUCN & CBB 2011) 37.
- 63 For example, Norman Ratcliffe and others, 'The Eradication of Feral Cats from Ascension Island and its Subsequent Colonization by Seabirds' (2010) 44 *Oryx* 20.
- 64 For example, Elizabeth A Denny and Christopher R Dickman, *Review of Cat Ecology and Management Strategies in Australia* (Invasive Animals Cooperative Research Centre 2010).

subject to similar limitations.⁶⁵ Likewise, curfews are at best a partial solution, and will (dis)advantage different species groups depending on the time of day they are applied.⁶⁶

Anti-predation devices like bells, bibs and coloured or sonic collar-mounted devices have been shown to reduce predation rates to different degrees, but (1) none is fully effective in preventing all predation; (2) they are less effective for fledgling birds; (3) fail to prevent predation of eggs and nestlings; (4) increase fear effects sooner than decrease them; and (5) many owners are unwilling to fit their pets with these devices in the first place.⁶⁷

It appears, then, that domestic cats' many and cumulative impacts on European wildlife can be effectively prevented and addressed only by (1) ensuring that owned cats are not allowed outdoors (except when leashed or in cat-proof enclosures like 'catios'); and by (2) removing stray and feral cats from the landscape to the greatest extent possible.

3. DOMESTIC CATS AND THE NATURE DIRECTIVES

Many international legal instruments for biodiversity conservation require their contracting parties to prevent or mitigate the adverse impacts of free-ranging domestic cats on wildlife, particularly through obligations addressing invasive alien species, protected areas and generic species protection.⁶⁸ The Nature Directives are no exception to this pattern.

3.1 General Obligations

A first provision of relevance is Article 22(b) of the Habitats Directive, requiring EU Member States to 'ensure that the deliberate introduction into the wild of any species which is not native to their territory is regulated so as not to prejudice . . . the wild native fauna . . . and, if they consider it necessary, prohibit such introduction'.

Furthermore, Article 2 of the Birds Directive sets out a broad conservation obligation for EU Member States regarding 'all species of naturally occurring birds in the

65 David A Jessup, 'The Welfare of Feral Cats and Wildlife' (2004) 225 *Journal of the American Veterinary Medical Association* 1377; Travis Longcore, Catherine Rich and Lauren M Sullivan, 'Critical Assessment of Claims Regarding Management of Feral Cats by Trap-Neuter-Return' (2009) 23 *Conservation Biology* 887; Christopher A Lepczyk and others, 'What Conservation Biologists Can Do to Counter Trap-Neuter-Return: Response to Longcore et al.' (2010) 24 *Conservation Biology* 627.

66 van Heezik and others (n 32).

67 Woods, McDonald and Harris (n 32); Sarah H Nelson, Andy D Evans and Richard B Bradbury, 'The Efficacy of Collar-Mounted Devices in Reducing the Rate of Predation of Wildlife by Domestic Cats' (2005) 94 *Applied Animal Behaviour Science* 273; Michael Calver and others, 'Reducing the Rate of Predation on Wildlife by Pet Cats: The Efficiency and Practicality of Collar-Mounted Pounce Protectors' (2007) 137 *Biological Conservation* 341; van Heezik and others (n 32); Thomas, Fellowes and Baker (n 49); Susan K Wilson, Iyi A Okunlola and Jessica A Novak, 'Birds Be Safe: Can a Novel Cat Collar Reduce Avian Mortality by Domestic Cats (*Felis catus*)?' (2015) 3 *Global Ecology and Conservation* 359; Catherine M Hall and others, 'Assessing the Effectiveness of the Birdsbesafe[®] Anti-Predation Collar Cover in Reducing Predation on Wildlife by Pet Cats in Western Australia' (2015) 173 *Applied Animal Behaviour Science* 40; Catherine Pemberton and Graeme D Ruxton, 'Birdsbesafe[®] Collar Cover Reduces Bird Predation by Domestic Cats (*Felis catus*)' (2019) *Journal of Zoology* (published online 8 October 2019).

68 Trouwborst, McCormack and Martínez Camacho (n 7).

wild state in the European territory of the Member States'.⁶⁹ Member States 'shall take the requisite measures to maintain the population' of all these wild bird species 'at a level which corresponds in particular to ecological, scientific and cultural requirements, while taking account of economic and recreational requirements, or to adapt the population of these species to that level'.⁷⁰ Despite the reference to cultural, economic and recreational requirements, the phrasing and general scope of this obligation make it a potentially demanding and far-reaching one.⁷¹ It can clearly be argued that Article 2 asks Member States to manage domestic cats where the available scientific information indicates that they pose a threat to bird populations, whether through predation, disease or otherwise.

3.2 Natura 2000

Another significant set of obligations involves the conservation of sites forming part of the Natura 2000 protected area network, ie Special Protection Areas established under the Birds Directive and Special Areas of Conservation designated under the Habitats Directive. For each Natura 2000 site, Article 6 of the Habitats Directive requires member state authorities to take 'the necessary conservation measures' which 'correspond to the ecological requirements' of the species and habitat types for which the site was designated, and also to 'take appropriate steps to avoid' any significant 'disturbance'.⁷² The term 'disturbance' broadly covers adverse effects of events, activities or processes—whether pre-existing or new—and is deemed 'significant' when, for instance, such effects are 'contributing to the long-term decline of the population of the species on the site'.⁷³ The Court of Justice of the EU (CJEU) has clarified that the above requirements are obligations of result rather than effort, meaning that Member States are required to do what it takes to conserve or restore the species in question within the corresponding sites.⁷⁴ If what it takes is controlling invasive alien predators, then that is what the Directive requires, as illustrated by a 2007 case in which the Court highlighted the duty of Ireland to address predation of sandwich terns (*Thalasseus sandvicensis*) by non-native American minks (*Neovison vison*).⁷⁵

Article 6 of the Habitats Directive would thus clearly require Member States to step in when predation or other impacts by free-ranging domestic cats threaten the breeding success, or otherwise threaten the long-term prospects, of birds or other animals for which Natura 2000 sites have been designated. For example, a 2013

69 Birds Directive, arts 1 and 2.

70 *ibid*, art 2.

71 Michael Bowman, Peter Davies and Catherine Redgwell, *Lyster's International Wildlife Law* (2nd edn, CUP 2010) 299–301; Arie Trouwborst, Floor M Fleurke and John DC Linnell, 'Norway's Wolf Policy and the Bern Convention on European Wildlife: Avoiding the "Manifestly Absurd"' (2017) 20 *Journal of International Wildlife Law and Policy* 155.

72 Habitats Directive, art 6(1)–(2).

73 European Commission, *Managing Natura 2000 Sites: The Provisions of Article 6 of the "Habitats" Directive 92/43/EEC* (European Commission 2018) 32; see also CJEU Case C–404/09 *Commission v Spain* [2011] ECR I–11853; Hendrik Schoukens, 'Ongoing Activities and Natura 2000: Biodiversity Protection vs Legitimate Expectations?' (2014) *Journal for European Environmental and Planning Law* 1.

74 CJEU Case C–96/98 *Commission v France* [1999] ECR I–8531; Case C–117/00 *Commission v Ireland* [2002] ECR I–5335; Case C–301/12 *Cascina Tre Pini* [2014] ECLI:EU:C:2014:214.

75 CJEU Case C–418/04 *Commission v Ireland* [2007] ECR I–10947.

study estimated that a feral population of around 50 domestic cats on the island of Schiermonnikoog in the Dutch Wadden Sea consumes an estimated 6,000 birds a year, including a quarter of the island's total breeding population of small-size birds, alongside indirect food competition effects on raptors and owls, and possible indirect impacts on habitat quality through predation of rabbits.⁷⁶ To provide another clear example, feral cats pose a threat to the endangered Zino's petrel (*Pterodroma madeira*) at its remaining breeding sites on Madeira,⁷⁷ which also have Natura 2000 status. Undoubtedly, therefore, EU law requires the Portuguese authorities to keep up the present cat trapping programmes there or to otherwise address the problem.

A propos, when removing stray and feral domestic cats in areas where wildcats live, care should evidently be taken to avoid accidentally killing wildcats. According to the Guidelines on the Conservation of the Wildcat adopted in 1992 by the Bern Convention's Standing Committee, feral cats in such areas should preferably be removed with live traps, and if shot then only by 'specifically authorized personnel'.⁷⁸

3.3 Species Protection

Of most interest for present purposes, however, are the strict protection obligations laid down by the Birds Directive with regard to native birds, and by the Habitats Directive with regard to non-avian species listed in its Annex IV. The scope of application of these provisions extends beyond protected areas to the broader landscape, as they apply anywhere the protected species occur.

Article 5 of the Birds Directive requires Member States to 'take the requisite measures to establish a general system of protection for all species of birds' that are native to the EU. Similarly, Article 12(1) of the Habitats Directive requires Member States to 'take the requisite measures to establish a system of strict protection for the animal species listed in Annex IV(a) in their natural range'. The hundreds of species listed in Annex IV include many which are actually or potentially vulnerable to adverse impacts by domestic cats, including rodents, shrews, bats, carnivores, lizards, snakes, frogs, beetles, butterflies and dragonflies.

Notably, the CJEU has repeatedly held that Article 12 requires the adoption of 'coherent and coordinated measures of a preventive nature' and the implementation of 'concrete and specific protection measures' for each Annex IV species.⁷⁹ Recently, the Court affirmed that Article 5 of the Birds Directive likewise requires the taking of 'concrete and specific protection measures' for birds.⁸⁰ In both cases, meeting these requirements would evidently entail taking measures to deal with threats posed by domestic cats where they arise. To illustrate, the wildcat is listed in Annex IV, and addressing the various aforementioned threats posed to their conservation by free-

76 Tjitse op de Hoek, Maarten Schrama and Chris Smit, 'Verwilderde Katten op Schiermonnikoog' (2013) 114 *De Levende Natuur* 4.

77 BirdLife International, *Pterodroma madeira* – *The IUCN Red List of Threatened Species 2018*: e.T22698062A132622973.

78 Guidelines on the Conservation of the Wildcat (*Felis silvestris*) (1992) paras 7–8.

79 CJEU Case C–518/04 *Commission v Greece* [2006] ECR I–42; Case C–183/05 *Commission v Ireland* [2007] ECR I–137; Case C–383/09 *Commission v France* [2011] ECR I–4869; Case C–340/10 *Commission v Cyprus* [2012] ECLI:EU:C:2012:143.

80 CJEU Case C–441/17 *Commission v Poland* [2018] ECLI:EU:C:2018:255, para 252.

ranging domestic cats would thus appear mandatory.⁸¹ Another potentially relevant provision is Habitats Directive Article 12(4), according to which Member States ‘shall establish a system to monitor the incidental capture and killing of the animal species listed in Annex IV(a)’ and, in light of this information, ‘take further research or conservation measures as required to ensure that incidental capture and killing does not have a significant negative impact on the species concerned’.

A core feature of the system of protection required by either directive is a set of prohibitions. For all bird species naturally occurring in the wild in the EU, Article 5 of the Birds Directive requires Member States to prohibit *inter alia*:

- a. ‘deliberate killing or capture by any method’
- b. ‘deliberate destruction of, or damage to, their nest and eggs or removal of their nest’;
- c. ‘taking their eggs in the wild’; and
- d. ‘deliberate disturbance of these birds particularly during the period of breeding and rearing, in so far as disturbance would be significant having regard to the objectives of this Directive’.

Member States may authorise exceptions from these prohibitions for a limited number of reasons only, and on condition that there is ‘no other satisfactory solution’.⁸² Eligible reasons include: public health and safety; air safety; prevention of serious damage to crops, livestock, forests, fisheries and water; the protection of flora and fauna; research, reintroduction and related breeding; and ‘to permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers’.⁸³ In addition, for any exception, Member States must specify *inter alia* the species involved, the ‘means, arrangements or methods authorized for capture or killing’, and ‘the controls which will be carried out’.⁸⁴ For species from Annex IV of the Habitats Directive, the latter’s Article 12(1) requires Member States to prohibit:

- a. ‘all forms of deliberate capture or killing’;
- b. ‘deliberate disturbance of these species, particularly during the period of breeding, rearing, hibernation and migration’;
- c. ‘deliberate destruction or taking of eggs from the wild’; and
- d. ‘deterioration or destruction of breeding sites or resting places’.

Again, exceptions may be allowed only under strict circumstances, broadly comparable to those which apply under the Birds Directive.⁸⁵

81 On the application of art 12 to hybridisation, see Arie Trouwborst, ‘Exploring the Legal Status of Wolf-Dog Hybrids and Other Dubious Animals: International and EU Law and the Wildlife Conservation Problem of Hybridization with Domestic and Alien Species’ (2014) 23 *Review of European, Comparative and International Environmental Law* 111.

82 Birds Directive, art 9(1).

83 *ibid.*

84 *ibid.*, art 9(2).

85 Habitats Directive, art 16.

The phrasing of Article 5 of the Birds Directive and Article 12(1) of the Habitats Directive makes clear that the required prohibitions apply with regard to each individual animal or egg of the protected species, and each individual action of (deliberately) killing, capturing, taking or disturbing one—with the sole exception of disturbance under the Birds Directive, which is to be prohibited only to the extent that it is ‘significant’ in light of the overarching goal of bird conservation. (Incidentally, in light of the research reviewed above, it is not inconceivable for cat-caused disturbance to cross this threshold.) The conservation status and population trend of the impacted species involved and the relative impact thereon of killing an individual specimen can be of relevance when determining the scope for particular exceptions, but these considerations are irrelevant to the applicability of the prohibitions themselves—again with the sole exception of disturbance of birds.

Moreover, the CJEU has clarified that Member States must not only prohibit the killing, capturing, disturbing and other indicated acts regarding the species concerned, but also take all measures necessary to ensure that these prohibitions are not violated in practice. The landmark decision in this regard concerned loggerhead sea turtles (*Caretta caretta*) in Greece.⁸⁶ Although the Greek authorities had forbidden disturbing activities such as the use of mopeds on breeding beaches of this Annex IV species, and the use of boats in nearby waters, these prohibitions were inadequately enforced. The very presence of mopeds on the beach and boats in the designated water area were taken by the CJEU to constitute violations of the obligations of Greece under Article 12, especially as ‘the acts were not isolated occurrences’.⁸⁷ Practical difficulties of supervision and enforcement, raised in defence by the Greek authorities—which asserted, for example, that nocturnal supervision was ‘particularly difficult to ensure owing to the length of the beach, the high number of access points and the low number of supervisors’⁸⁸—did nothing to sway the Court’s conclusion.

Likewise, in 2011 the CJEU ruled that France had violated its obligations under Article 12 by failing to take measures enabling the ‘effective avoidance’ of the deterioration and destruction of the breeding sites of European hamsters (*Cricetus cricetus*) in agricultural areas.⁸⁹ In the same vein, in 2012 the CJEU held that Cyprus had breached EU law by tolerating the organisation of moto-cross racing and other activities in the habitat of Cypriot grass snakes (*Natrix natrix cypriaica*), another Annex IV (sub)species.⁹⁰ Again, the judgment underlined that Article 12 requires ‘the *effective avoidance* of all forms of deliberate capture or killing . . . , deliberate disturbance . . . , deliberate destruction or taking of eggs from the wild as well as deterioration or destruction of breeding sites or resting places’.⁹¹ The Court reinforced this conclusion when it revisited the Greek turtle issue in a 2016 judgment.⁹² Finally, in a recent

86 CJEU Case C–103/00 *Commission v Greece* [2002] ECR I–1147.

87 *ibid*, paras 32–40.

88 *ibid*, para 37.

89 Case C–383/09 (n 79) para 37; see also Charles George and David Graham, ‘After *Morge*, Where Are We Now? The Meaning of “Disturbance” in the Habitats Directive’ in Gregory Jones (ed), *The Habitats Directive: A Developer’s Obstacle Course?* (Hart Publishing 2012) 43, 52.

90 Case C–340/10 (n 79).

91 *ibid*, para 62 (emphasis added).

92 CJEU Case C–504/14 *Commission v Greece* [2016] ECLI:EU:C:2016:847.

judgment on tree felling in the Polish Bialowieza forest, the Court confirmed that Article 5 of the Birds Directive requires the implementation, ‘in the same manner as provided for by Article 12 of the Habitats Directive, of concrete and specific protection measures that must enable it to be ensured’ that the prohibitions involved ‘are actually complied with’.⁹³

In light of all this, a key question for present purposes is whether and to what degree the act of allowing one or more domestic cats to roam free can come within the scope of the above prohibitions. Insofar as it does, letting cats roam outdoors must be forbidden *and* effectively prevented by EU Member States. Insofar as it does not, Member States still have the obligation under Article 12(4) of the Habitats Directive to systematically monitor ‘incidental capture and killing’ of Annex IV animals by domestic cats, and to take the necessary measures to ensure that such killing does ‘not have a significant negative impact on the species concerned’.

3.4 Interpreting ‘Deliberate’

The answer to the above question largely turns on the interpretation of the term ‘deliberate’. This is a question of huge practical significance. Member State authorities and many other stakeholders have favoured a narrow interpretation limiting the term’s remit to actions where it is an agent’s actual *intent* to kill, capture or disturb protected animals or destroy their eggs. This would exclude many activities—such as mining and construction, but also many routine operations in agriculture, forestry and fisheries—from the scope of the strict protection regime, and in terms of its enforcement ‘it would be hard to prove such explicit intent’.⁹⁴ However, in contrast with this ‘eagerness at Member States’ level to apply the aforementioned prohibitions in the most pragmatic way possible’,⁹⁵ the case law of the CJEU—which has the final say in EU law interpretation—is driven largely by the need to ensure an effective application of EU legislation, in light of its objectives.

Regarding the Court’s interpretation of ‘deliberate’ in the present context, important clues already follow from the above discussion of case law. In the Cyprus case, the organisers and participants of moto-cross racing presumably did what they did because they liked moto-cross, not because they *intended* to disturb or kill Cypriot grass snakes. Still, their activities qualified as *deliberate* disturbance or killing in the sense of Article 12 of the Habitats Directive, and the authorities should therefore have prohibited *and* effectively prevented them from happening.⁹⁶ The same is true of the people riding the mopeds and piloting the boats on and near the loggerhead turtle beaches, and yet Article 12 required the Greek authorities to prohibit and prevent these acts.⁹⁷ Significantly, in both cases, it is the *apparent potential* for disturbance or killing which triggers the application of Article 12, the application of which is

93 Case C-441/17 (n 80) para 252.

94 Hendrik Schoukens and Kees Bastmeijer, ‘Species Protection in the European Union: How Strict is Strict?’ in Charles-Hubert Born and others (eds), *The Habitats Directive in Its EU Environmental Law Context: European Nature’s Best Hope?* (Routledge 2015) 121, 138.

95 *ibid.*

96 Case C-340/10 (n 79).

97 Case C-103/00 (n 86).

therefore not limited to instances where it is *certain* that one or more turtles or snakes will be actually affected.

According to CJEU Advocate-General (AG) Kokott, the Court in the turtle judgment seems to interpret the term ‘deliberate’ in the sense of ‘conscious acceptance of consequences’.⁹⁸ This interpretation was expressly confirmed by the Court itself in 2006, in a case concerning the alleged risk of otters (*Lutra lutra*, listed in Annex IV) ending up as bycatch in stopped snares set for foxes (*Vulpes vulpes*, not listed) on particular hunting grounds in Spain.⁹⁹ In the words of the Court, the condition as to ‘deliberate’ capture or killing in terms of Article 12 is met if the act’s author intended this result ‘or, at the very least, accepted the possibility of such capture or killing’.¹⁰⁰ In this case, however, as there was no proof of otter presence in the hunting area involved, it could not be established that ‘by issuing the contested permit for fox hunting the Spanish authorities knew that they risked endangering otters’.¹⁰¹ In addition, the AG in her opinion had observed that otters were unlikely to be trapped in the land-based fox snares even if present.¹⁰² In 2007 the CJEU again applied a broad understanding of the term ‘deliberate’ by ruling that the use of explosives to construct a submarine pipeline in Irish waters amounted to ‘deliberate disturbance’ of Annex IV cetaceans.¹⁰³ Lastly, in its 2016 Greek turtle judgment, the Court found that because those responsible for various disturbances—including construction of houses and roads, the operation of bars on nesting beaches and wild camping in the vicinity—‘at least accepted the possibility of the *Caretta caretta* sea turtle being disturbed during the breeding period, the condition as to deliberate action in Article 12(1)(b) of Directive 92/43 is met’.¹⁰⁴

To summarise, the fact that any capture, killing, disturbance or egg destruction is the unintended result of the pursuit of other purposes clearly does not preclude it from being ‘deliberate’ in terms of Article 12 of the Habitats Directive.¹⁰⁵ The Greek turtle and Spanish otter cases in particular do indicate a requirement of awareness, in the sense that an action apparently qualifies as ‘deliberate’ under Article 12 only insofar as its agent knew—or at the very least should have known—that the action could result in the killing or disturbance of strictly protected animals.¹⁰⁶

Based on this case law, the European Commission, in a 2007 (non-binding) guidance document on the Habitats Directive’s strict protection regime, concluded that ‘not only a person who fully intends to capture or kill a specimen of an animal commits an offence’ but that ‘an offence is also committed by a person who might not intend to capture or kill a specimen but is sufficiently informed and aware of the consequences his action will most likely have and nevertheless performs the action,

98 AG Opinion in Case C-6/04 *Commission v United Kingdom* [2005] ECR I-9020, para 118.

99 CJEU Case C-221/04 *Commission v Spain* [2006] ECR I-4515.

100 *ibid*, para 71.

101 *ibid*, para 73.

102 AG Opinion in Case C-221/04 *Commission v Spain* [2005] ECR I-4518, para 75.

103 Case C-183/05 (n 79) para 36

104 Case C-504/14 (n 92) para 159.

105 See also *George and Graham* (n 89) 46.

106 *ibid* 47.

leading to the capturing or killing of specimens'.¹⁰⁷ Thus, the prohibitions of Article 12 are breached when the killing, capture or disturbance of protected animals occurs as an 'unwanted but accepted side-effect'¹⁰⁸ of someone's actions. An apparent example is the bycatch of harbour porpoises (*Phocoena phocoena*) and other Annex IV cetaceans in fisheries 'where the possibility of capturing or killing cetaceans in the course of fishing is possible and "accepted" as a potential outcome'.¹⁰⁹

It appears safe to conclude that the interpretation of 'deliberate' in Article 5 of the Birds Directive should occur along similar lines, given the very similar phrasing of the strict protection obligations in the Habitats and Birds Directives, and given the very similar approach taken to their interpretation by the CJEU in its jurisprudence. A 1987 judgment on the Birds Directive also points in this direction.¹¹⁰ As AG Kokott recaps the Court's statements in that case, 'the intention to use land, for example for agricultural purposes, does not preclude the simultaneous deliberate killing or capture of birds, the deliberate destruction of, or damage to, their nests and eggs and their deliberate disturbance, within the meaning of Article 5 of the Wild Birds Directive'.¹¹¹

For instance, depending on the circumstances, the mowing of meadows with breeding black-tailed godwits (*Limosa limosa*) or northern lapwings (*Vanellus vanellus*) may well qualify as producing 'unwanted but accepted side-effects' at odds with Article 5 of the Birds Directive,¹¹² and the same applies to suction harvesting of olives at night, given the 'bycatch' of roosting songbirds.¹¹³ Further examples include the foreseeable killing and disturbance of birds through logging operations in the breeding season;¹¹⁴ and the operation of wind turbines associated with likely bird collisions.¹¹⁵

3.5 A Duty to Prohibit and Prevent the Free Roaming of Cats

Applying this to cats, we are now in a position to answer the questions: (1) whether allowing domestic cats to roam free can come within the scope of the various

107 European Commission, *Guidance Document on the Strict Protection of Animal Species of Community Interest under the Habitats Directive 92/43/EEC* (European Commission 2007) 33.

108 *ibid.*

109 Sandy Luk and Sarah Gregerson, 'Marine Species Protection and Management in the European Union' in Born and others (n 94) 399, 411; see also Arie Trouwborst and Harm M Dotinga, 'Soortenbescherming in de Noordzee: Laveren door een Warnet aan Internationale, Europese en Nederlandse Regels met de Bruinvis als Loods' (2008) 2008 Tijdschrift voor Omgevingsrecht 90.

110 CJEU Case 412/85 *Commission v Germany* [1987] ECR 3503.

111 AG Opinion in Case C-6/04 (n 98) fn 42; also AG Opinion in Case C-221/04 (n 102) fn 23.

112 Arie Trouwborst and Harm M Dotinga, 'De Gebrekkige Bescherming van Weidevogels in Agrarische Gebieden in Nederland (2)' (2017) 2017 Tijdschrift Natuurbeschermingsrecht 96.

113 Luis P da Silva and Vanessa A Mata, 'Stop Harvesting Olives at Night – It Kills Millions of Songbirds' (2019) 569 *Nature* 192.

114 Minna Pappila, 'Summer Loggings and Bird Protection: On Regulation and Derogations' (2019) 28 *Review of European, Comparative and International Environmental Law* 210; and Case C-441/17 (n 80).

115 Arie Trouwborst, 'Generieke Bescherming van Soorten in de Noordzee – Bedolven Slakken, Gesloopte Wrakken en de Betekenis en Beperkingen van het Soortenbeschermingsrecht' in Harm M Dotinga and others (eds), *Het Dilemma van de Noordzee: Intensief Gebruik en het Grootste Natuurgebied van Nederland* (Boom Juridische Uitgevers 2011) 39.

prohibitions and, if so; (2) when it actually does. The answer to the first question is clearly affirmative, especially given the broad interpretation of the term ‘deliberate’. In most cases, a person’s purpose in letting a cat wander outdoors will not be the killing or disturbance of protected wildlife, but the perceived well-being of the cat itself, or the cat’s ability to kill (unprotected) rodents or the convenience of having a pet that largely looks after itself. The cat’s impact on protected wildlife will usually be an ‘unwanted but accepted side-effect’.

The answer to the second question depends on the presence of species that are covered by the Nature Directives’ strict protection regimes and are liable to being captured, killed, disturbed or having their eggs taken by cats. To give one example, dormice (*Gliridae*), most of which are listed in Annex IV of the Habitats Directive, are distinctly prone to predation by domestic cats.¹¹⁶ It appears, then, that allowing one’s cat to wander free in these species’ habitat within the EU would equal ‘accepting the possibility’ of dormouse killing, to use the CJEU’s terminology—and would thus amount to ‘deliberate killing’ which the Member State in question is bound to prohibit and actually prevent as a matter of EU law. The same applies with regard to all other Annex IV species vulnerable to domestic cats’ impacts.

It also applies to ‘all species of naturally occurring birds in the wild state in the European territory of the Member States’.¹¹⁷ This is of tremendous practical significance, given the occurrence of native birds across the entire surface of the EU. It is common knowledge that domestic cats—whether in natural areas, around farms or in residential areas—hunt birds. Moreover, as discussed above, there is a significant body of scientific evidence documenting the various impacts of cats on birds, including predation of adults, fledglings, nestlings and eggs and disturbance. As also discussed above, mitigation measures like cat bells and anti-predation collars may reduce the risks to adult birds but do not eliminate them, and do little or nothing to prevent predation of young birds and eggs—and they evidently do not prevent disturbance either. It will also be recalled that the prohibitions of killing, capturing and taking of eggs in Article 5 of the Birds Directive apply regarding every individual bird of every species, whether common or rare, and regardless of the relative importance of predation by cats on the species’ overall prospects.

As noted above, not *all* free-roaming pet cats are active hunters. One may ask whether this has any influence on the far-reaching conclusion to which this analysis appears to be leading. When looking at the prohibitions of killing and capturing, in *theory*, Member States are not held to prohibit and prevent the free roaming of cats that are proven to be consistent non-hunters of wildlife. In *practice*, however, several obstacles arise which point in a different direction. Enforcement difficulties are not the least of these. For instance, effectively enforcing a partial ban presupposes the ability of law enforcement authorities to readily distinguish between ‘hunting’ and ‘non-hunting’ cats. Another hurdle is the conundrum of having to verify for each cat whether it hunts in the first place, without initially giving it the opportunity to do so—the latter being a prohibited act, as just established. An added complication is

116 Joeri Cortens and Goedele Verbeulen, *Verspreiding van en Beschermingsmaatregelen voor de Eikelmuis (Eliomys quercinus) in Vlaams-Brabant* (Natuurpunt Studie 2007).

117 Birds Directive, art 1 (and art 5).

that the hunting behaviour of a single cat may change over the course of its lifetime, and may also vary with changing locations and times of year. For these reasons alone, opting for a partial ban on the free roaming of domestic cats would appear to make it nigh impossible for Member States to meet their obligation of effectively preventing the deliberate killing of protected wildlife. Additional complications follow from the prohibition of disturbing protected animals. As mentioned before, domestic cats cause disturbance effects by their mere presence, even if they never hunt.

Moreover, given the manifest weight of the available evidence, any remaining uncertainties regarding exact predation rates or other details of cats' impacts may not be used as a reason to postpone effective measures, in accordance with the precautionary principle, which is codified *inter alia* in the 2007 Treaty on the Functioning of the European Union (TFEU),¹¹⁸ and in light of which the Nature Directives must be interpreted and applied.¹¹⁹ This is in line with the approach of the CBD COP, which has determined that '[l]ack of scientific certainty about the various implications' of an invasive alien species for biodiversity 'should not be used as a reason for postponing or failing to take appropriate eradication, containment and control measures'.¹²⁰

In light of the state of the science and the state of the law, therefore, the conclusion must be that in principle, all EU Member States are presently legally required to ensure that letting cats roam free outdoors is forbidden *and* effectively prevented. Consequently, Member State authorities must make it clear to the public at large that allowing cats to roam free is forbidden—either by informing the public that such behaviour is covered by existing prohibitions under domestic nature conservation legislation, or by adopting additional legislation which explicitly prohibits permitting cats to roam free. Most importantly, Member States must effectively enforce these prohibitions.

It should be noted, furthermore, that the exception possibilities in Article 9 of the Birds Directive (like those in Habitats Directive Article 16, for that matter) offer little or no scope for derogating from the required prohibitions. It is difficult to imagine circumstances in which it could be proven that the free roaming of certain cats is necessary for reasons of 'public health and safety', 'air safety', the 'protection of flora and fauna' or for the purposes of 'research and teaching, of re-population, of re-introduction and for the breeding necessary for these purposes'.¹²¹ It is also unlikely that derogations can be justified 'to permit, under strictly supervised conditions and on a selective basis, the capture, keeping or other judicious use of certain birds in small numbers', especially given the restrictive interpretation given to this clause in

118 Treaty on the Functioning of the European Union [2012] OJ C326/47, art 191(2).

119 For example, CJEU Case C-127/02 *Waddenvereniging and Vogelbescherming* [2004] ECR I-7405; see also Maggie Lilith and others, 'Protecting Wildlife from Predation by Owned Domestic Cats: Application of a Precautionary Approach to the Acceptability of Proposed Cat Regulations' (2006) 31 *Austral Ecology* 176; Michael Calver and others, 'Applying the Precautionary Principle to the Issue of the Impacts by Pet Cats on Urban Wildlife' (2011) 144 *Biological Conservation* 1895; Loss and Marra (n 2).

120 CBD COP Decision VI/23 (2002) Annex, Guiding principle 1.

121 Birds Directive, art 9(1)(a)–(b).

the case law of the CJEU.¹²² Even if the free roaming of domestic cats could be considered a traditional practice, akin to bird hunting customs in various parts of Europe, it is an obvious problem that the hunting behaviour of cats is typically non-selective.¹²³ The only conceivable reason mentioned in Article 9 is ‘to prevent serious damage to crops’. Exceptions for any cats other than farm cats needed for ‘pest control’ thus appear to be ruled out from the start. Member State authorities wishing to issue a derogation must, furthermore, furnish proof that authorising a certain farmer to have a certain number of free-roaming cats is necessary to prevent ‘serious’ crop damage by small rodents (the capacity of cats to suppress numbers of larger rats is limited¹²⁴) and, in particular, that there is ‘no other satisfactory solution’ to achieve such damage prevention. Perhaps an even more considerable obstacle is that Article 9 only allows for *prior* authorisations for *specific* and *controlled* exceptions (Article 9(2)). According to the Court, these conditions laid down by Article 9(2) are intended to ‘limit derogations to what is strictly necessary’ by ensuring that they are ‘applied appropriately in order to deal with precise requirements and specific situations’.¹²⁵ Again, it is problematic in this regard that it is next to impossible to predict with any precision the species and number of birds that a given cat or number of cats will kill in a given period.

In any event, from the EU law perspective it is ultimately the result that counts, and our analysis appears to indicate that the required result in all countries of the EU is, in principle, a landscape without free-ranging domestic cats.

4. IMPLEMENTATION IN ARREARS

This is, of course, not what we see. While cat control efforts are being pursued in various places, in many others feral and stray cat populations are largely tolerated. Moreover, to our knowledge, at present not a single Member State effectively prevents cat owners from letting their pets roam outdoors—despite the apparently inescapable conclusion, drawn above, that EU nature conservation law requires Member States to do so.

There are many other instances of Member States insufficiently complying with their obligations under the Nature Directives,¹²⁶ as witnessed *inter alia* by the significant amount of infringement proceedings against Member States over such non-compliance. Often, the existence of an apparent situation of non-compliance with EU law can be explained by one or several of the following factors: (1) interpretive

122 *ibid*, art 9(1)(c); see CJEU Case C-262/85 *Commission v Italy* [1987] ECR 3073; Case C-10/96 *Ligue Royale Belge pour la Protection des Oiseaux* [1996] ECR I-6775; Case C-182/02 *Ligue pour la Protection des Oiseaux* [2003] ECR I-12105; Case C-557/15 *Commission v Malta* (2018) ECLI:EU:C:2018:477. With regard to the similar clause in Habitats Directive art 16(1)(e), see Case C-674/17, *Luomonsuojeluyhdistys Tapiola Pohjois-Savo* [2019] ECLI:EU:C:2019:851.

123 See eg the Judgment and AG Opinion in Case C-557/15, *ibid*.

124 Michael H Parsons and others, ‘Temporal and Space-Use Changes by Rats in Response to Predation by Feral Cats in an Urban Ecosystem’ (2018) 6 *Frontiers in Ecology and Evolution* 146.

125 CJEU Case C-118/94 *Associazione Italiana* [1996] ECR I-1223, para 21.

126 José Vicente López-Bao, ‘Toothless Wildlife Protection Laws’ (2015) 24 *Biodiversity and Conservation* 2105; Guillaume Chapron and others, ‘Bolster Legal Boundaries to Stay Within Planetary Boundaries’ (2017) 1 *Nature Ecology and Evolution* 0086.

disagreement on the precise requirements of the law regarding a particular issue; (2) insufficient awareness amongst authorities and other stakeholders of those requirements, also in cases where they *are* unambiguous; (3) a sense that meeting the requirements is practically unfeasible, disproportionately costly, otherwise unreasonable (for instance with a view to an illegal practice's significant benefits or perceived harmlessness) or at odds with other legal obligations; and/or (4) political inconvenience, as in a reluctance to curb an illegal practice that is very popular.

Insofar as the first two play a role in the current context—ie interpretive ambiguity and lack of awareness as to what the Nature Directives require regarding domestic cats—it is hoped that the present article can help to remedy these factors to some extent.

Regarding the third, various treaty obligations of relevance to domestic cat management expressly allow a role for considerations of feasibility in their application.¹²⁷ As shown above, however, there seems to be little scope for Member States to take such considerations into account when applying the aforementioned obligations under the Nature Directives. This applies to many issues besides domestic cats. For instance, the conclusion that 'Article 12(1) of the Habitats Directive prohibits fishing where cetacean by-catch is a recognised possibility'¹²⁸ may pose practical difficulties from a fisheries perspective, but is not for that reason somehow escapable, and the same appears true for nocturnal suction harvesting of olives and, depending on the circumstances, for other previously mentioned activities. At any rate, methodological advances are enabling feral cat eradication at ever larger scales.¹²⁹ And even if the financial cost of eradication operations can be substantial,¹³⁰ their benefits 'accumulate in perpetuity' as long as re-establishment of feral cat populations is prevented.¹³¹ Prohibiting cat owners from allowing their pets to roam free outdoors without supervision requires an act of domestic legislation, and/or a public information campaign regarding the scope of legislation. As with similar prohibitions of previously entrenched behaviour (for instance smoking in public places), the effective enforcement of this ban will carry a certain price tag, especially in the first period after enactment. Generally, however, it should be noted that addressing free-ranging domestic cats is comparatively easy and cheap when compared to other drivers of biodiversity loss, such as mainstream unsustainable agriculture, logging, fisheries and mining practices or climate change.¹³²

Regarding the perceived interests of domestic cats themselves, even if there were scope for bringing such considerations into the equation when implementing EU nature conservation law, it is hard to see on what objective grounds the interests of domestic cats should trump the interests of the wild animals impacted by them—with the 'massive killing and crippling of native wildlife'¹³³ by cats raising this question

127 Trouwborst, McCormack and Martínez Camacho (n 7).

128 Luk and Gregerson (n 109) 411.

129 Campbell and others (n 62); Nogales and others (n 26).

130 Steffen Opper and others, 'Eradication of Invasive Mammals on Islands Inhabited by Humans and Domestic Animals' (2010) 25 *Conservation Biology* 232.

131 Nogales and others (n 26) 805.

132 Peter Marra and Chris Santella, *Cat Wars: The Devastating Consequences of a Cuddly Killer* (Princeton UP 2016).

133 David A Jessup, 'The Welfare of Feral Cats and Wildlife' (2004) 225 *Journal of the American Veterinary Medical Association* 1377, 1377.

both at the level of individual animals and that of populations and species.¹³⁴ Besides, it is less than clear that allowing cats to roam outdoors is in their best interest in the first place, given the considerable risks of being run over in traffic, contracting diseases and other outdoor dangers.¹³⁵

Regarding the interests of cat owners and other people who are in favour of letting cats roam free, it is likewise unclear on what grounds these private interests should outweigh the core public interest of biodiversity conservation—and, incidentally, of public health¹³⁶—or the private interests of those who wish to safeguard their properties and surroundings from the nuisance and health hazards posed by cats, and prefer not to witness any further death, suffering and stress caused by cats to other animals.¹³⁷

These conclusions might be different if, for instance, it could be convincingly shown that as a matter of EU law pet cats occupy a legally privileged position compared to the species covered by the Nature Directives. One avenue to substantiate such an argument might be to conceptualise pets as propretized extensions of their human keepers. Restrictions on the enjoyment of pet cats then might engage human rights protected by the EU Charter of Fundamental Rights,¹³⁸ with the right to property (Article 17) and the right to private and family life (Article 7) in particular inviting closer scrutiny. It is not hard to see, however, why such arguments should ultimately fail. Regarding Article 17, the notion that the enjoyment of cats as property is adversely affected by rules that implore owners at all times to secure full control over their property is in itself counter-intuitive and problematic. Yet, even if one insists that part of the enjoyment resides in the low-maintenance nature of cats that come and go, then surely restrictions to that aspect of cats as pets are justified by the public interest, proportional and, as shown above, required by law.¹³⁹ Arguments premised on Article 7 are more tenuous still, first because it is far from clear that the CJEU will be inclined to extend the scope of that provision to pets,¹⁴⁰ and secondly because obligations to keep cats indoors actually have the effect of strengthening the relationship between cats and their owners. Needless to say, even if Article 7 were to apply, any restrictions would again be in the public interest, proportional and required by law, and hence legitimate.

If domestic cats thus do not enjoy a privileged legal status by virtue of their kinship to humans, perhaps they have nonetheless been afforded a special legal status in

134 Trouwborst, McCormack and Martínez Camacho (n 7).

135 Danusia Moreau, P Cathelain and Antoine Lacheretz, 'Comparative Study of Causes of Death and Life Expectancy in Carnivorous Pets (II)' (2003) 154 *Revue de Médecine Vétérinaire* 127; Irene Rochlitz, 'The Effects of Road Traffic Accidents on Domestic Cats and Their Owners' (2004) 13 *Animal Welfare* 51; Jessup (n 133); Agneta Egenvall and others, 'Morbidity of Insured Swedish Cats During 1999-2006 by Age, Breed, Sex, and Diagnosis' (2010) 12 *Journal of Feline Medicine and Surgery* 948; Kayleigh Chalkowski and others, 'Who Let the Cats Out? A Global Meta-Analysis on Risk of Parasitic Infection in Indoor Versus Outdoor Domestic Cats (*Felis catus*)' (2019) 15 *Biology Letters* 20180840.

136 Gerhold and Jessup (n 57); A Alonso Aguirre and others, 'The One Health Approach to Toxoplasmosis: Epidemiology, Control, and Prevention Strategies' (2019) 16 *EcoHealth* 378.

137 Trouwborst, McCormack and Martínez Camacho (n 7).

138 Charter of Fundamental Rights of the European Union [2012] OJ C326/391.

139 *ibid*, art 52.

140 Deborah Rook, 'For the Love of Darcie: Recognising the Human-Companion Animal Relationship in Housing Law and Policy' (2018) 39 *Liverpool Law Review* 29.

their own right? The following provision in the TFEU may be thought *prima facie* to sustain such an argument: ‘In formulating and implementing the Union’s agriculture, fisheries, transport, internal market, research and technological development and space policies, the Union and the Member States shall, since animals are sentient beings, pay full regard to the welfare requirements of animals, while respecting the legislative or administrative provisions and customs of the Member States relating in particular to religious rites, cultural traditions and regional heritage.’¹⁴¹ Leaving aside potentially important differences between the notions of ‘animal welfare’ and ‘animal rights’,¹⁴² and if one also chooses to ignore scientific opinion to the contrary by persisting that as a matter of animal welfare pet cats should be allowed to roam, the ‘personal’ (material?) scope of the TFEU provision would seem to be confined to agricultural animals (livestock and fish) and test animals. If, on the other hand, the CJEU were to find that its scope extends to *all* sentient animals, including pets and wildlife, then this quite arguably only adds legal pedigree to measures aimed to protect wildlife by restricting the outdoor movement and incidence of pet cats.

Finally, mention must be made of the European Convention on the Protection of Pet Animals¹⁴³ (Pet Convention), to which the EU is not a party but the vast majority of EU Member States is. The Convention contains both general standards pertaining to the keeping of pets,¹⁴⁴ as well as provisions regarding measures aimed at problems caused by stray animals.¹⁴⁵ The former *inter alia* require pet keepers to take the ‘ethological needs’ of their pets into account, which includes providing them with ‘adequate opportunities for exercise’.¹⁴⁶ These provisions obviously must be understood in light of the treaty’s overarching aims. Of key importance in that regard is the preambular recital stipulating that the Convention (also) seeks to address ‘the risks which are inherent in pet animal overpopulation for hygiene, health and safety of man and of other animals’.¹⁴⁷ In any event, the express statement that ‘[n]othing in this Convention shall affect the implementation of other instruments for the protection of animals or for the conservation of threatened wild species’¹⁴⁸ entails that the obligations flowing from the EU Nature Directives remain unaffected by the Pet Convention. Moreover, the Convention’s operational provisions apparently serve to support EU Member States’ obligation to prohibit owners from allowing their pet cats to roam free, by *inter alia* requiring that any person keeping a pet must ‘take all reasonable measures to prevent its escape’.¹⁴⁹ In other words, the ‘adequate opportunities for exercise’ of pet cats should be offered indoors, on a leash, or within cat-proof enclosures.

Needless to say, nothing in the above precludes Member State authorities, when choosing amongst various effective methods to implement their EU nature

141 TFEU, art 13.

142 Bart Driessen, ‘Fundamental Animal Rights in European Law’ (2017) 23 *European Public Law* 547.

143 European Convention for the Protection of Pet Animals, ETS 125 (1987) (hereinafter *Pet Convention*).

144 *ibid*, art 4.

145 *ibid*, art 12–13.

146 *ibid*, art 4(2).

147 *ibid*, preamble.

148 *ibid*, art 2(3).

149 *ibid*, art 4(2)(c).

conservation obligations regarding cats, to opt for the method that is most considerate of the cats' welfare.

That leaves the fourth of the aforementioned factors. Even in cases where it is very obvious that limiting the freedom of certain members of society to do as they wish would be in the interest of society at large, and even where the law requires it, administrators and legislators can be reluctant to do so when those affected are somehow politically influential. Cat owners and cat interest groups are a case in point, and in various countries domestic cat management has become a contentious issue, with some opponents of restricting pet cats' freedom and removing stray and feral populations resorting to disinformation campaigns¹⁵⁰ or even threats of violence against scientists and policymakers.¹⁵¹ Again, Forbush's century-old book tells us that such controversy is not a new phenomenon:

Questions regarding the value or inutility of the domestic cat, and problems connected with limiting its more or less unwelcome outdoor activities, are causing much dissension. The discussion has reached an acute stage. Medical men, game protectors and bird lovers call on legislators to enact restrictive laws. Then ardent cat lovers rouse themselves for combat. In the excitement of partisanship many loose and ill-considered statements are made.¹⁵²

Thus, we speculate that the reluctance of EU Member State authorities to effectively address the domestic cat problem, or even to flag it as a problem, may be driven at least partly by the expected unpopularity of such actions in some sectors of society.¹⁵³ Insofar as this is the case, this would offer an *explanation*, but not a viable *justification* for non-compliance with EU law.¹⁵⁴

Whichever way, this is an area where an implementation catch-up effort is visibly in order, given the significant gap between what EU nature conservation law requires of Member States regarding free-ranging cats and what Member States are doing—or rather failing to do. It is instructive to view the cat issue in light of the outcomes of the Nature Directives' recent 'fitness check', which concluded that 'the Nature Directives are fit for purpose but fully achieving their objectives and realizing their full potential will depend on substantial improvement in their implementation'.¹⁵⁵ Addressing free-ranging domestic cats appears to be an area where relatively big gains in this regard can be achieved through relatively modest efforts.

150 Scott R Loss and Peter P Marra, 'Merchants of Doubt in the Free-Ranging Cat Conflict' (2018) 32 *Conservation Biology* 265; Loss and others (n 30).

151 Marra and Santella (n 132); Loss and others (n 30).

152 Forbush (n 1) 3.

153 Marra and Santella (n 132); Carlos Rouco and others, 'New Zealand Shouldn't Ignore Feral Cats' (2017) 67 *BioScience* 686.

154 Trouwborst, McCormack and Martínez Camacho (n 7).

155 Commission, 'Executive Summary of the Fitness Check of the EU Nature Legislation (Birds and Habitats Directives)' SWD (2016) 473 final.

5. CONCLUSION

It is well recognised that biodiversity loss is one of the most urgent contemporary crises, in Europe as much as globally.¹⁵⁶ It is also well established that free-ranging domestic cats pose a significant threat to European biodiversity. Furthermore, addressing this threat is comparatively easy and cheap when compared to addressing other drivers of biodiversity loss, and even seems to align with cats' own interests, given the dangers of outdoor living. Last but not least, the above analysis of the Nature Directives in light of current scientific knowledge shows that effectively addressing this threat is also *required* of Member States by EU nature conservation law. Stray and feral cats are to be removed or controlled when they pose a threat to protected species and/or sites. Regarding pet and farm cats, the Nature Directives require EU Member States to ensure that letting them roam free is forbidden and effectively prevented.

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156 See eg Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), Summary for policymakers of the global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, advance unedited version (6 May 2019).