

LIABILITY FOR THE RELEASE OF GMOS INTO THE ENVIRONMENT: EXPLORING THE BOUNDARIES OF NUISANCE

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ENVIRONMENTAL POLICY AND THE REGULATION OF GMO RELEASES

THE widespread commercial planting of genetically modified crops has yet to be sanctioned in Europe, but cannot be far away. This is a prospect that arouses considerable public concern as to both the health and environmental implications of genetically modified organisms (“GMOs”). The application of biotechnology in the development of new agricultural products raises major concerns not only for environmental protection, however, but also for the potential role of liability regimes in the allocation and protection of property rights. In the European Union, a regulatory framework for field trials and the commercial exploitation of GM crops was introduced at a relatively early stage in the development of agricultural biotechnology. The Directives on the Deliberate Release into the Environment of Genetically Modified Organisms and on the Contained Use of genetically modified microorganisms¹ require technocratic authorisation processes based on a scientific risk assessment of GM releases. They require member states to establish arrangements for field trials under licence (so-called “Part B” authorisations applicable to experimental releases), and to prohibit the subsequent marketing of a genetically modified crop or seed without a Part C authorisation permitting commercial releases. The relevant authorisations are to be granted only after the conduct of a scientific risk assessment upon which the public authorities can satisfy themselves that the release is safe. Under the revised Deliberate Releases Directive adopted in 2001,² the risk

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¹ O.J. 1990 L. 117 p. 1 and 15, 23 April 1990. The 1990 Deliberate Releases Directive has been repealed and replaced by Directive 2001/18/E.C., O.J. L. 106 17.4.2001.

² Directive 2001/18/E.C. O.J. L. 106 17.4.2001. The Directive came into force on 17 October 2002. For an appraisal of the environmental risk assessment regime under the revised Directive see T. Sampson, “Environmental Risk Assessment of GHOs under Directive 2001/18: An Effective Safety Net or a Collective Illusion?” (2003) 25(2) E.I.P.R. 79.

assessment will in future require the “direct, indirect, immediate and delayed” effects to be taken into account when assessing the potentially adverse effects of a GMO. Market authorisations under the new Directive are to be given for a limited period of 10 years. The amendments to the EC legislation were intended to speed up, and introduce greater transparency into, the administrative decision making processes required for the release and marketing of GMOs.

Under procedures laid down in the United Kingdom to implement these requirements, the marketing of new GM seeds can only be undertaken if the seeds are officially listed,³ and after trial plantings that inevitably involve a release to the environment in controlled conditions.⁴ The release of a GMO into the environment in this way can only be undertaken with the consent of the Secretary of State, who must be satisfied that it is safe.⁵ Expert scientific advice on the safety of releases is provided by the Advisory Committee on Releases to the Environment (“ACRE”). The government launched an extensive programme of Farm Scale Evaluations in 1999, although to date only one Part C licence for the commercial exploitation of a GM crop has been granted, for Chardon LL, an herbicide resistant GM maize fodder crop developed by Aventis.⁶

Despite the application of complex trialling and authorisation procedures, the introduction of GM crops and their potential impact on wildlife and the environment continue to generate considerable public concern. An opinion poll conducted in 1999 found that 79% of the British public opposed even the conduct of field trials of GM crops⁷ and public resistance to trial plantings has manifested itself in a number of high profile acts of mass trespass and damage to GM trial crops.⁸ The government’s own advisers on biotechnology and nature conservation have also expressed concern

³ See the Seeds (National Lists of Varieties) Regulations 1982, especially reg. 11(3).

⁴ Although some would argue that this is not a *release* into the environment but a test of what such a release might lead to.

⁵ Environmental Protection Act 1990, ss. 108–112.

⁶ Chardonn L.L. was granted a part C commercial licence in 1998, under the more limited assessment procedures contained in the 1990 Deliberate Releases Directive. It is being re-assessed in the Farm Scale Evaluations initiated by the government in 1999, under the terms of the agreement with the biotechnology industry underpinning the “moratorium” on GM plantings in the UK.

⁷ Greenpeace Press Release, 10 April 1999. The survey was conducted by MORI, an independent public polling organisation.

⁸ The “decontamination” of a GM farm scale trial in East Anglia by Lord Peter Melchett and 27 Greenpeace volunteers in 2000 was perhaps the most well known. The refusal of a jury at Norwich Crown Court to convict them of either theft or criminal damage, and their subsequent acquittal on all charges, underlines the unease felt by members of the public about the trial planting programme and the safety of GM technology. See Greenpeace Press Release, “Greenpeace welcomes verdict and calls on Government to end GM Farm Experiments”, 20 September 2000.

about the implications for the protection of biodiversity of the introduction of herbicide resistant GM oilseed rape and beet crops.⁹ The crisis of confidence in the trialling and authorisation procedures for the release of GMOs reflects a general decline of public confidence in “sound science”, and skepticism about official reassurances as to risk assessment.¹⁰ This springs, in large part, from public concern about the way in which the BSE crisis was dealt with by governmental agencies in the UK, and a loss of confidence in the value of governmental processes for establishing and safeguarding environmental risk.¹¹ Public concern might be assuaged by the introduction of more participatory and transparent models for decision making about GM field trials and licensing. The Agriculture and Environment Biotechnology Commission (“AEBC”)¹² recently published a case study of decision making in the Farm Scale Evaluations of GM crops undertaken so far in the UK,¹³ and is currently considering mechanisms for promoting an effective debate on their commercialisation following the completion of the current round of Farm Scale Evaluations.¹⁴ Whether these initiatives will assuage public opinion as to the “soundness” of scientific advice about the environmental implications of GM technology remains to be seen.

Given the apparent failure of confidence in state governance, attention has turned towards the development of an approach based on property rights and civil liability to offer solutions for

⁹ Agriculture and Environmental Biotechnology Commission (“AEBC”) *Looking Ahead: an AEBC Horizon Scan* (AEBC 2002) at para. 69ff.; English Nature Research Report No. 443 *Gene-stacking in herbicide tolerant oilseed rape: lessons from the North American experience* (English Nature, February 2002).

¹⁰ See generally M. Cardwell, “The Release of Genetically Modified Organisms into the Environment: Public Concerns and Regulatory Responses”, (2002) 4 *Env. L. Rev.* 156. For a discussion of some of the key issues surrounding the regulation of GM releases in the US see Neil D. Hamilton, “Legal Issues Shaping Society’s Acceptance of Biotechnology and Genetically Modified Organisms” (2001) 6 *Drake Journal of Agricultural Law* 81 (although, as Cardwell points out, any comparisons with the US position must take into account the fact that concerns about the environmental implications of GMO releases developed much later in the US and have been more muted: (2002) 4 *Env. L. Rev.* 156 at 166).

¹¹ See generally G. Little, “BSE and the Regulation of Risk” (2001) 64 *M.L.R.* 730; also the findings of the Phillips Report on the BSE crisis: Vol. 1 Findings and Conclusions: Executive Summary of the Report of the Enquiry, 1 Key Conclusions (available at <http://www.bseinquiry.gov.uk.html>).

¹² The Agriculture and Environment Biotechnology Commission was established in 2000 to promote public debate on the issues surrounding GM crops and to advise the government on a wide range of issues concerning GMOs and the environment, including revisions to the regulatory framework for GMO authorisations and liability for damage arising from the introduction of GM crops.

¹³ *Crops on Trial* (AEBC 2001), available at www.aebc.gov.uk

¹⁴ To this end the AEBC has established a public attitudes development group to take this forward and provide further advice on how and when a public debate about the possible commercialisation of GM crops might be initiated. See the *AEBC Draft Revised Work Plan* (AEBC April 2002).

damage caused by GMO releases.¹⁵ Potential liability for economic or environmental losses flowing from the introduction of GM crops, and the question of who should pay for any resulting damage (the Agri biotechnology companies or farmers growing GM crops, for example), has become a key focal point in the dispute over the commercialisation of GM crops.¹⁶

Although the debate is in its early stages in the UK, there have already been a number of liability suits in the USA and Canada, though none have, as yet, been decided. In some, farmers have sued the biotechnology companies alleging economic loss flowing from contamination of their non-GM crops with GM material emanating from products promoted by the corporations.¹⁷ A number of nuisance suits in the USA are ongoing following the recent discovery that particles of the GM corn “Star Link” had entered the human food chain.¹⁸ This crop expresses an insecticide protein Cry9C that is not approved by the US Environment Protection Agency for human consumption, and the discovery of GM “contamination” emanating from Star Link damaged domestic and export markets for US corn. On a pre-trial motion to dismiss the consolidated actions in the Star Link litigation, the farmers’ allegation that pollen from GM corn had drifted across property lines onto their land was held to support their private nuisance claims under state law. A similar decision was given upholding their right to bring public nuisance claims arising from the alleged contamination of the general corn supply and its detrimental economic effect on corn producers.¹⁹ In Canada, organic growers in Saskatchewan have claimed that the introduction of Monsanto’s Roundup Ready Canola²⁰ and Aventis’ Liberty Link Canola has

¹⁵ See generally D. Campbell, “Of Coase and Corn: A (Sort of) Defence of Private Nuisance” (2000) 63 M.L.R. 197.

¹⁶ The potential liability problems arising from the introduction of different types of herbicide and insecticide resistant GM crops is the subject of the latest consultation exercise initiated by the AEBC: *AEBC Consultation About GM Crops: Post-Commercialisation Scenarios* (September 2002). This posits nine scenarios for discussion involving potential loss flowing from the introduction of GM crops, including the “contamination” of neighbouring crops, biodiversity damage and economic damage to organic producers facing the loss of their certified organic status.

¹⁷ See Philip Jones, “Litigation in the Wind” (April 2002), available at <http://www.biotech-info.net/wind.html>

¹⁸ See *In Re Star Link Corn Products Liability Litigation, Marvin Kramer et al. v. Aventis Crop Science USA Holding Inc. et al.* (2002) 212 F.Supp.2d 828 (US District Court N.D. Illinois).

¹⁹ (2002) 212 F.Supp.2d 828, at 845ff. (Senior District Judge Moran). The litigation is complex, involving product liability claims, in addition to claims in negligence and nuisance, and the potential for the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) to exclude claims in state law based on labelling and packaging requirements. The district court held, on a preliminary motion, that the claims in nuisance and negligence were pre-empted by FIFRA insofar as they sought to impose a labelling requirement on the defendants which went beyond the federal labelling requirements set out in FIFRA. The other pre-trial motions challenging the claims based in nuisance and negligence, including those alleging contamination of neighbouring crops, were dismissed.

²⁰ *I.e.* rapeseed.

destroyed the market for their organic crops, alleging that because GM canola has been found growing on land for which it was not intended (so called “volunteer” GM plants) it is now impossible to obtain organic accreditation for organic canola production. The Saskatchewan Organic Directorate is currently campaigning to prevent the introduction of the next Monsanto product, Roundup Ready Wheat, which it claims will have the same effect on the production of organic winter wheat in the province.²¹ In other suits, farmers have initiated legal action against neighbouring farmers, claiming crop contamination due to pollen from GM crops coming onto their property via wind drift or insect pollination. There are also analogies with pesticide drift cases, where organic farmers have in the past successfully sued crop dusters for the contamination of organic land with chemical pesticides sprayed from the air over neighbouring farms.²²

The only decisions so far in which the liability and property rights issues have been explored have been outside the law of tort. The most well known is the recent Canadian decision in *Monsanto v. Schmeiser*.²³ This was a patent infringement claim brought by Monsanto against an arable farmer whose rapeseed crop had acquired its patented RT73 gene, either by wind drift and cross-pollination or by any of a number of other unproved means. Monsanto’s patent infringement claim was successful at first instance, in a surprising decision that illustrates a number of the problems that would be inherent in a nuisance suit for GM contamination.²⁴ The decision has now been upheld in the Canadian Federal Court of Appeal, and may go to the Canadian Supreme Court.²⁵ Schmeiser did not counterclaim for damages in nuisance, although the reasons for his failure to do so are far from clear.²⁶ In *R. v. Secretary of State for the Environment ex parte Watson*²⁷ an approval granted to the National Institute for Agricultural Botany for field trials of GM maize at a site in Devon was challenged on judicial review by a neighbouring organic producer. This challenge, mounted in administrative law, was

²¹ See the website of the Saskatchewan Organic Directorate for press releases and further information : <http://www.saskorganic.com>.

²² See for example *Langan v. Valicopters Inc.* (1977) 88 Mn.2d 855 (Washington State Supreme Court).

²³ (2001) 12 C.P.R. (4th) 204 (F.C.T.D.). For criticism see generally Maria Lee and Robert Burrell, “Liability for the Escape of GM Seeds: Pursuing the Victim?” (2002) 65 M.L.R. 517, H. Wilkins and F. Latorre, “Biodiversity at a Crossroads” (2002) 4 Env. L. Rev. 62.

²⁴ These are explored further below: see note 59.

²⁵ (2002) F.C.A. 309 (reserved judgment delivered on 4 September 2002). Leave to appeal to the Supreme Court of Canada has been applied for.

²⁶ The principal reason may be procedural. Nuisance suits fall under provincial court jurisdiction, whereas Monsanto filed their patent suit in the Canadian Federal Patent Court (which has no jurisdiction in nuisance cases).

²⁷ [1999] Env. L. R. 310 (CA).

ultimately unsuccessful due to the court's unwillingness to interfere with the risk assessment undertaken by the ACRE. In the course of a short judgment dismissing the claim, Buxton L.J. commented that the applicant's case "sounded like one of private nuisance" and should have been pleaded as such, as the claim was ultimately aimed at restricting the NIAB's right to use property for an otherwise legitimate purpose. Although these issues were not explored in depth, this case (like *Schmeiser*) illustrates a number of difficulties in the way of a plaintiff seeking to establish liability for alleged GM "contamination" in nuisance, to which we will return below.

Supplanting these cases in importance, however, is the pending litigation in *Hoffman, LB Hoffman Farms Inc. and Beaudoin v. Monsanto Canada and Aventis Crop Science Canada Holding Inc.*,²⁸ a case that arises from the Saskatchewan Organic Directorate's campaign to prevent the introduction of Roundup Ready Wheat on the Canadian prairies. With the Directorate's support, two certified organic producers have initiated a class action against Monsanto and Aventis on behalf of all organic farmers in Saskatchewan certified as such between 1 January 1996 and 31 December 2001. The plaintiff's statement of claim alleges that as a result of the widespread contamination of their crops by GM canola (rapeseed), very few organic grain farmers are able to grow canola, and that this crop—an important tool in the crop rotations of organic farmers—had been lost to organic farmers in Saskatchewan.²⁹ They also claim that if GM wheat is introduced by Monsanto on a commercial scale, this crop will also be lost to organic producers owing to cross contamination and the withdrawal of certified organic status from affected producers. The claim (unlike that in *ex parte Watson*) has been drawn in tort, alleging nuisance (the introduction of GM canola into the Saskatchewan environment, thereby interfering with certified growers' use and enjoyment of their land), negligence (breaching a duty of care owed to certified producers by failing to ensure that GM seed would not infiltrate farmland, and failing to warn producers of the dangers of cross contamination), strict liability under the *Rylands v. Fletcher*³⁰ principle (engaging in a non natural user of land and allowing the escape of substances likely to cause damage to neighbouring property owners) and trespass.³¹ There has been some preliminary

²⁸ 2002 Sask.Q.B. no 67

²⁹ The Statement of Claim can be viewed on the Saskatchewan Organic Directorate's website: <http://www.saskorganic.com>.

³⁰ (1868) L.R. 3 H.L. 330.

³¹ The pleadings also allege breach of duties under two environmental protection statutes: the Saskatchewan Environmental Management and Protection Act (release of a "pollutant") and

skirmishing between the parties, but the litigation has not yet reached a full hearing.

The decision in *Hoffman Farms* will be eagerly awaited, and may have major implications for plans to license GM crops for commercial exploitation in the UK. Whatever the outcome, the Canadian litigation will throw into sharp relief the issues surrounding environmental liability for GMO “contamination”, and the potential use of tort law to modulate property rights and risk where the introduction of GM crops is involved. These issues will undoubtedly have to be faced by the English courts if the commercial planting of GM crops is authorised following the completion and appraisal of the Farm Scale Evaluation programme.

GMO RELEASES: WHAT ROLE FOR PRIVATE NUISANCE?

The introduction of GM crops could constitute a public nuisance affecting a section of the general public, especially where there is widespread cross-pollination of wild plants or of non-GM crops grown by other farmers in the immediate neighbourhood. It has limited utility, however, as a basis for adjudicating on liability claims arising from the introduction of GMOs. Public nuisance does not commonly provide monetary damages to private plaintiffs, and actions for injunctions are sought either by the Attorney General or the local authorities, unless an individual claimant can prove “special” damage beyond that suffered by the general public. The law of private nuisance is therefore more likely to provide the basis for a civil liability regime directed at mediating alleged damage and property rights disputes arising from the introduction of GM crops.³² Similarly, in the present context it is unlikely that liability could in practice arise under the principle in *Rylands v. Fletcher* but not in private nuisance. It is improbable that the courts would interpret the growing of GM crops as a non natural user of land, and in any case the “escape” of GM pollen leading to cross fertilisation of neighbouring non-GM crops would rarely if ever be an isolated event within the scope of the *Rylands* principle. The following discussion focuses primarily, therefore, on the

the Environmental Assessment Act (S.S. 1979–80) (for unauthorised development within the meaning of section 2 of that Act, involving the unauthorised unconfined release of GM canola or the confined field trials of GM wheat undertaken since 1998 by Monsanto).

³² It is worth noting, however, that the claimants in the *Star Link Corn Products Liability Litigation* (above note 18) have, in addition to damages claims grounded in private nuisance, pleaded that the contamination of the general food corn supply in that case amounted to public nuisance. Public Nuisance also features in some of the claims in the ongoing litigation in Canada in *Hoffman, LB Hoffman Farms Inc. and Beaudoin v. Monsanto Canada and Aventis Crop Science Canada Holding Inc.* (above note 28).

potential for private nuisance to provide a basis from which a liability regime might be developed.

The established rules of private nuisance give rise to a number of difficulties when GM technology is considered. The right to sue in nuisance, for example to challenge the introduction of GM crops on a neighbouring property, is currently exercisable only by those with an affected property interest.³³ This would offer possible redress to adjoining landowners who may be organic producers fearing GM contamination of their crops, but not to the wider public. Another issue concerns the nature of the interests protected in nuisance. The claimant's land use must not be "hypersensitive", and there is as yet no clear guidance whether the use of land for organic production would be viewed by the courts as overly sensitive, and thus unprotected in nuisance.³⁴ There are also problems inherent in the use of the "locality" test to establish the reasonableness of new land uses on existing patterns of production and land use.

A number of different claims may flow from the release of GMOs to the environment. These must be clearly identified before an appraisal of the potential role of the law of nuisance in this area can be attempted. Where GM crops are introduced, the potential cross-fertilisation of non-GM crops on neighbouring farms will be a key issue. Where this occurs, the question will be whether cross-fertilisation amounts to "damage" of the claimant's non-GM crops in the required sense, and is therefore potentially remediable in nuisance. Another corollary of the introduction of some types of GM crop might be "biodiversity damage" *i.e.* damage to the environmental quality of a claimant's land, which is no longer able to sustain populations of wild flora and fauna due to the degradation of the ecosystems prevalent there. This might be the case, for example, where pesticide or herbicide resistant GM crops are introduced on neighbouring holdings. In this instance the "damage" may result, however, not from the introduction of the GM crop *per se*, but from the increased use of herbicides or pesticides to which that crop has been rendered immune by genetic manipulation, leading to a degradation of sensitive ecosystems in the locality. Inasmuch as this type of case does not involve a direct interference with established categories of property right it is problematic, and unlikely to be remediable in private nuisance. There would, in any event, be difficult causative issues if a civil liability regime provided for this type of claim. Finally, where the introduction of GM technology is challenged, neighbouring

³³ See *Hunter v. Canary Wharf Ltd.* [1997] A.C. 655.

³⁴ See *R. v. Secretary of State for the Environment ex parte Watson* [1999] Env. L. Rev. 310.

proprietors may allege damage to their commercial interest—for example the withdrawal of “organic” farming status, with a consequent impairment of their ability to market their produce as “GM-free”. This third type of claim *may* be remediable in nuisance, although the case law is (as we shall see) confused and relatively undeveloped.

Whether the law of nuisance can offer a remedy for alleged GM “contamination” will depend upon the type of damage for which redress is ought. It is a well-established principle, for example, that no suit lies in nuisance if the act complained of merely affects the profitability of the plaintiff’s commercial activities, without affecting the carrying out of the business on his land.³⁵ It is not enough to make it actionable that the complainant (for example, an organic farmer) faces commercial damage if his neighbour introduces GM crops. He must establish a property right that has been infringed.³⁶ This will be problematic, and raises questions as to the extent to which a claimant’s land-use rights will be protected. It could be argued that the land-use rights of adjoining owners will not usually be affected by the introduction of GM crops on neighbouring land—rather the *type* of land use they practice (organic production) may be threatened. On the other hand, the case law discloses examples of nuisance providing a remedy to protect particular types of user, provided they are not hypersensitive.³⁷ The question in the type of case presently under consideration will be whether the right to produce organically is a legally protected interest of the claimant and whether, by planting GM crops, the defendant has unreasonably interfered with it. In the case of potential impacts on biodiversity—for example if gene technology is used to increase the tolerance of crops to pesticides or herbicides—the question also arises whether the right affected is a private property right protected by the law of nuisance. If it is one of a public interest nature it will only be protected in private (as opposed to public) nuisance if there is also some private right interfered with.

Interference with another’s use and enjoyment of land is not *per se* actionable. The law of nuisance requires that the interference be substantial, in the sense that the claimant cannot reasonably be

³⁵ See *Victoria Park Racing v. Taylor* (1937) 58 C.L.R. 457.

³⁶ The traditional basis of private nuisance was re-stated in these terms by the House of Lords in *Hunter v. Canary Wharf Ltd.* [1997] A.C. 655. But cf. the more imaginative approach to commercial losses taken in some of the “natural nuisance” cases discussed below, for example *French v. Auckland City Council* [1974] 1 N.Z.L.R. 340.

³⁷ See for example *Christie v. Davey* [1893] 1 Ch. 316 (injunctive relief granted to prevent interference with music lessons conducted by the claimant in a neighbouring house) and *Hollywood Silver Fox Farm Ltd. v. Emmett* [1936] 2 K.B. 468. Note, however, that the interference in these cases was rendered actionable by reason of its malicious nature. The farmer planting GM crops is more likely to be motivated by factors involving profitability and production costs than a malicious intent to interfere with his neighbour’s crops.

expected to put up with it.³⁸ The focus here is on the interference with the claimant's land-use rights, and not the reasonableness of the defendant's actions. Although the exercise is essentially one of balancing the competing property interests of neighbouring landowners, therefore, the law of nuisance is claimant sided.³⁹ It is not an exercise in balancing the social or economic utility of the defendant's conduct against the damage it causes to the claimant. This is important in the context of GM technology, as the alleged benefits flowing from the introduction of GM crops (greater yield for example) cannot in principle be brought into account against an alleged interference with the private property rights of neighbouring landowners. Similarly, whether interference is sufficiently "substantial" to ground an action in nuisance should be considered by looking at the claimant's land use and assessing the magnitude of the impacts arising from the alleged nuisance. The nature of the alleged nuisance itself (in this case growing GM crops on adjoining property) should not in itself be a relevant factor.

When these basic tenets of the law of nuisance are examined in the context of potential claims for GM crop "contamination", the tensions between environmental policy and the definition and extent of property rights protected in the law of tort immediately becomes apparent. In *Hunter v. Canary Wharf Ltd.*⁴⁰ Lord Goff quoted with approval the following definition of nuisance: "In true cases of nuisance the interest of the plaintiff which is invaded is ... the interest of liberty to exercise rights over land in the amplest manner".⁴¹ Were the courts to refuse a remedy for the unconsented genetic alteration of a claimant's produce by cross-pollination from nearby GM crops, this would render his property right contingent. He may choose to farm organically, but his right to do what he likes on his own land would in effect become subject to the state's right to determine that that right be protected only if its exercise pursues an economic function approved by the state.⁴² In not protecting it, the state would be elevating the property right of the GM producer over those of neighbouring non-GM producers, a position which involves a tacit endorsement of the economic priority to be given to GM production. In this regard the regulatory regime for authorising GM releases also has a potentially key role to play in allocating and legitimating property rights.

³⁸ *Kennaway v. Thompson* [1981] Q.B. 88.

³⁹ See A. Grubb, *The Law of Torts* (2001) Butterworths, Common Law Library, at para. 22.39. [1997] A.C. 667, at 688.

⁴¹ F.H. Newark, "The Boundaries of Nuisance" (1949) 65 L.Q.R. 480, 488–489.

⁴² See D. Campbell, "Of Coase and Corn", above note 15, pp. 214–215 on this aspect of the problem.

CLASSIFYING NUISANCE CLAIMS FOR GM “CONTAMINATION”

The common law has traditionally distinguished between cases involving physical damage, and those involving interference with the claimant's comfort and convenience, when assessing whether interference with property rights is sufficiently “substantial” to engage liability in nuisance.⁴³ Where the nuisance is caused by encroachment or physical damage, the character and situation of the neighbourhood and the surrounding circumstances are not in principle to be taken into account. The only limitation is that the claimant cannot recover for interference with an abnormally sensitive use of his property.⁴⁴ Where, on the other hand, the substantial interference alleged is merely with the comfort or convenience of the claimant, then the gravity of the infringement of property rights is assessed objectively. The court will look at the nature and extent of the interference with the character of the neighbourhood and the reasonableness of the defendant's conduct.

Whether the law of nuisance can provide a mechanism to resolve property rights disputes arising from the introduction of GM crops depends, in part, into which of these two categories they are placed by the courts. The approach taken to the first order decision on categorising the claim will be important, and will be determinative of the ultimate utility of tort based remedies in cases involving GM releases. If the courts view this type of case merely as an interference with the comfort/convenience of the non-GM claimant then the character of the neighbourhood becomes an issue. The “locality” test focuses on the predominant land use in the geographical area concerned and its social and environmental qualities, and gives normative effect to collective land-use decisions made within the community. If an area has declared itself “GM free” and has a preponderance of organic producers, therefore, this would in principle be relevant, and the introduction of GM technology on one farm more likely to constitute an actionable nuisance. It would be immaterial whether the decision to become GM free was made collectively by a local body (for example a local authority or producers co-operative) or had come about by individual producers adopting this stance independently of one another. In some cases, on the other hand, the nuisance may be claimed to involve physical damage—as might be claimed, for example, where the genetic makeup of organic produce has been altered by cross pollination with neighbouring GM crops. In this type of case the character of the neighbourhood should in principle

⁴³ *St. Helens Smelting Co. Ltd. v. Tipping* (1865) 11 H.L.C. 642.

⁴⁴ See *McKinnon Industries Ltd. v. Walker* (1951) 3 D.L.R. 577, discussed further below.

only be relevant if the court categorises the alleged nuisance as an interference with the convenience or enjoyment of the claimant's property, and not as a physical damage suit. If this type of case would more properly be categorised as a physical damage claim, then the locality test will become irrelevant—although the issue of hypersensitivity in the claimant's land use (for example organic production) remains.

DEFINING "DAMAGE" TO PROPERTY

The classification of nuisance claims therefore depends on the court's view of the nature of the damage flowing from the alleged tort. The way in which damage is defined and proved in this context is important for two reasons. It determines whether the nuisance claim is categorised as one arising out of physical damage or interference with the comfort/convenience of neighbouring landowners. And whether a case is classified as a physical damage or a convenience/comfort claim determines the basis on which the reasonableness of the defendant's interference with the plaintiff's land use is assessed.⁴⁵ This raises difficult problems where the claimant alleges damage resulting from the introduction of GMOs by neighbouring landowners. The nature of the damage alleged to result from cross-fertilisation of non-GM crops by crops which have been genetically modified will often be subtle. Moreover, it can usually be confirmed only by scientific investigation and analysis. The other damage commonly in issue will be harm to the claimant's business interests caused by a perceived threat to his organic status, an equally difficult area which raises the question of the limits of recovery for purely economic loss in nuisance.

The courts have significantly widened the legal conception of damage in negligence in recent years,⁴⁶ and in the context of statutory liability for *e.g.* emissions of radioactive material.⁴⁷ In the closely related tort of nuisance, the extant case law is more ambivalent as to the relevance of scientific processes in establishing the scope of recoverable damage. This is particularly the case where physical damage (as opposed to interference with the use and enjoyment of land) is the alleged cause of action. In *Salvin v. Brancepeth Coal Co.*⁴⁸ Sir William James commented:

⁴⁵ As noted above, the "locality" rules are different for the different types of claim.

⁴⁶ See generally C. Witting, "Physical Damage in Negligence" [2002] C.L.J. 189.

⁴⁷ For example in *Blue Circle Industries plc v. Ministry of Defence* [1999] Ch. 289 (CA), discussed further below.

⁴⁸ (1874) 9 Ch. App. 705, 709. The bias against reliance on scientific evidence was even more strongly put by Mellish L.J., who commented that "unless the damage is proved to have been sustained so that ... every fairly instructed eye can really and clearly see it" it is impossible to say that substantial damage has occurred: (1874) 9 Ch. App. 705, 713.

Although when you once establish the fact of actual damage it is quite right and legitimate to have recourse to scientific evidence as to the causes of that damage, still if you are obliged to start with scientific evidence, such as the microscope of the naturalist or the tests of the chemist, for the purpose of establishing the damage itself, that evidence will not suffice. The damage must be such as can be shown by a plain witness to a plain common jurymen.

The cases in which the common law principles were formulated in the nineteenth century were chiefly concerned with the polluting impact of heavy industrial production, and emissions of noxious fumes and deposits from factories, coke works and the like. In these cases the nature of the damage would be readily apparent to the naked eye, and less sophisticated than that associated either with GMOs or (indeed) with modern industrial processes.

Notwithstanding the enormous technological advances that have taken place since the Victorian era, most discussions of proof of damage in nuisance suits still start with the principles in the *Salvin* case,⁴⁹ an approach which ignores subsequent advances in scientific methods for determining and measuring the potentially damaging impacts of modern technology. It also defines very narrowly the range of physical damage for which the law of nuisance provides a remedy, and ignores the fact that many forms of damage arising from modern industrial or farming processes are complex and, in some cases, will emerge over a long span of time. The potential environmental damage that the introduction of herbicide resistant GM crops may cause to the natural habitat of farmland birds and invertebrates is an example—although the damage here will often be attributable not to the planting of GM crops *per se*, but rather to the subsequent use of herbicides or pesticides to which the crop has been made resistant. Difficult legal problems would also ensue if wild plant species acquired traits from closely related GM species of cereal or fodder crop, and these gave them a competitive advantage over other wild species which they proceeded to drive out and replace.⁵⁰ Damage to birds, animals or other wildlife would not be

⁴⁹ Perhaps surprisingly, a number of Victorian decisions, including *Salvin v. Brancepeth Coal Co.* are still cited as leading authorities on proof of damage in private nuisance claims in the standard reference works e.g. *Clerk and Lindsell on Torts* (18th edn. 2000), at 19.09, Grubb, *The Law of Tort*, at 22.14.

⁵⁰ For example, hypothetical Scenario 2 in the AEBC consultation on Liability for GM releases posits the case of forage grass which has been genetically modified to make it resistant to droughts, and sugar beet which has been modified to make it resistant to salt: *Agriculture and Environment Biotechnology Commission Consultation About GM Crops: Post Commercialisation Scenarios* (AEBC September 30 2002 at p. 5). The scenario envisaged involves the drought tolerance transferring to a wild relative of the forage grass and the salinity resistance to a sugar beet relative, with the result that the wild plants affected gain a competitive advantage and displace other plants in the surrounding area. Whether a neighbouring farmer whose crops are affected could sue would depend on whether he could establish that the gene

remediable in nuisance, as the latter is limited to protecting private property interests. Damage to wildlife *habitats* may, however, be remediable in nuisance if it can be characterised as property damage, although the primary role in protecting habitat falls to the statutory conservation agencies⁵¹ under environmental legislation if it occurs in a Site of Special Scientific Interest⁵² or Special Area of Conservation.⁵³ The Wildlife and Countryside Act 1981 makes it a criminal offence for a third party (for example a neighbouring farmer planting GM crops) to damage wildlife habitat within an SSSI, but gives no civil remedy to the land owner directly affected.⁵⁴ The law of nuisance may, therefore, have an important role in this respect. Many of the leading decisions on the nature of damage recoverable in nuisance were, however, decided over a hundred years ago when scientific methods for *detecting* changes in the genetic and cellular makeup of plants and animals, or the impact on the human or animal physiology of exposure to toxic materials, was in its infancy. If the law of nuisance is to develop a meaningful role in a future liability regime for damage by GMO releases, therefore, the rules for identifying and evaluating property damage will have to be reappraised to take account of modern technological advances.

Interestingly, the courts have recently reappraised the definition of property damage in the analogous context of statutory liability for nuclear emissions.⁵⁵ In *Blue Circle Industries plc v. Ministry of Defence*⁵⁶ flooding from several ponds on a MoD site⁵⁷ after a

transfer was a foreseeable consequence (this is discussed further below). If the plants affected are wild flowers or weeds, however, then no one will be liable unless they are an important species which has been designated for protection under nature conservation legislation *e.g.* the area where they are found is a notified SSSI under the Wildlife and Countryside Act 1981. In this case, criminal sanctions would apply under section 28 of the 1981 Act for any damage caused.

⁵¹ *I.e.* English Nature, the Countryside Council for Wales or Scottish Natural Heritage: Environmental Protection Act 1990, Part VII.

⁵² SSSIs are notified by the conservation agencies under Wildlife and Countryside Act 1981, s. 28, as amended by the Countryside and Rights of Way Act 2000, Sched. 9.

⁵³ Designated by the conservation agencies under the Conservation (Natural Habitats & C.) Regulations 1994, SI 1994/2716, reg. 10. The land-use controls imposed on the owners and occupiers of protected sites are complex, and beyond the scope of the present paper. See *e.g.* C.P. Rodgers "Planning and Nature Conservation: Law in the Service of Biodiversity?", in C. Miller (ed.) *Planning and Environmental Protection* (Oxford 2002), chap. 5. The legislation primarily imposes obligations on the owner or occupier of land in a designated site, and not on neighbouring landowners. It therefore has limited relevance to the issue under discussion here, *i.e.* the liability of neighbouring landowners introducing GM crops for the damage that may ensue on land in the immediate vicinity, which may include SSSIs or Special Areas of Conservation. The primary focus of the conservation legislation is on the damage that landowners may carry out to wildlife habitats on their own land.

⁵⁴ See Wildlife and Countryside Act 1981, s. 28P(6), introduced by Countryside and Rights of Way Act 2000, Sched.9.

⁵⁵ Nuclear Installations Act 1965, ss. 7, 12, impose a strict liability regime for "damage" to property arising as a consequence of the escape of radioactive particles from a controlled nuclear installation.

⁵⁶ [1999] Ch. 289 (C.A.)

⁵⁷ *I.e.* the Atomic Weapons Establishment at Aldermaston.

heavy storm resulted in radioactive plutonium intermingling with the soil in marshland on the claimant's adjoining estate. The Court of Appeal held that scientific evidence of damage was admissible in this context, and that the change in the chemical composition of the soil amounted to "damage" for the purposes of the Nuclear Installations Act 1965. The latter imposed liability where there was an alternation in the physical characteristics of the property caused by radioactive substances rendering it less useful or valuable. The plutonium had intermingled with the soil in the marsh to such an extent that the two could not be separated, with the result that the marshland had become "radioactive waste" and was unsaleable until the contaminated soil had been removed. Unfortunately, the court eschewed the opportunity to review the older authorities on quantifying damage in the common law of nuisance,⁵⁸ and the decision is firmly located in the context of the statutory liability regime for nuclear emissions. Particular stress was put on the fact that the contaminated top soil on the claimants property had become a radioactive substance within the meaning of the Radioactive Substances Act 1960, a fact which engaged legal liability both for its disposal and the manner in which this was to be done.⁵⁹ This clearly differentiated the nature of the damage as damage to property from other analogous cases where the contamination alleged did not change the chemical composition of the claimants property itself *e.g.* *Merlin v. BNFL*,⁶⁰ where radioactive dust discharged from BNFL's Sellafield plant was alleged to have been carried into the claimant's home on the shoes of family members and pets.

The reasoning in the *Blue Circle case* has potential relevance in the closely analogous context of GMO releases, where the genetic composition of a claimant's crop may have been altered by cross-fertilisation from nearby GM crops. Until severed from the soil, crops are part of the land to which they are attached,⁶¹ and an alteration in the genetic make up of one's crops would, in principle, constitute damage to property in the same terms. In the context of nuisance, however, there is a further question *viz.* whether "damage" is an objectively established factor, or whether it depends

⁵⁸ Neither *Salvin v. Brancepeth Coal Co.* nor any of the other of the Victorian decisions on establishing property damage in the law of nuisance are discussed in the judgments in *Blue Circle Industries*.

⁵⁹ See [1999] Ch. 289, 300 *per* Aldous L.J.

⁶⁰ [1990] 2 Q.B. 557. The claim was discharged on the basis that damage to property meant damage to tangible and physical property. Cf. *Hunter v. Canary Wharf* [1997] A.C. 655 where it was held in the Court of Appeal that the deposit of dust on carpets from shoes could amount to damage to personal property. This point was not taken in the appeal to the House of Lords.

⁶¹ Law of Property Act 1925, s. 205.

upon the subjective intent of the owner as to the intended composition of the property damaged. If the genetic makeup of Xs crop has been altered by cross pollination caused by wind drift of GM seed onto his land, surely this is “damage”, in the sense that the physical composition of the crop is no longer that which he intends and wishes? It has been changed without his consent. Or should the courts have a role in determining which *types* of alteration in the chemical or genetic make up of a claimant’s property will engage liability? This issue did not arise in *Blue Circle*, because the soil there had been altered in such a way as to render it a prescribed substance subject to control under the legislation on radioactive substances. In the GM context the issue is different. The precise nature of the genetic alteration to the contaminated crop will not usually be relevant: the affected producer will simply want his produce (whatever it is) to be GM free.

Although presenting itself as a question relating to the nature of the damage sustained, the issue here is closely bound up with the definition and extent of property rights protected by the law of nuisance. The decision in *Monsanto v. Schmeiser*⁶² neatly illustrates this point. The court there held that, as soon as Schmeiser discovered the presence of the RT73 gene in his crop (by reason of observing its resistance to Roundup Ready) he was prevented from selling or distributing any of the seeds produced from it, and from planting seeds derived from that crop in successive years.⁶³ This arguably ignores the property rights of the farmer, who owns the contaminated crop until severed from the land and sold, and for whom the intrusion into it of the unwanted gene was arguably “pollution”.⁶⁴ The conflict between the rights of the patent holder and those of the owner of land on which a “volunteer” GM plant is found was considered on appeal, but the Federal Court of Appeal held there to be no authority for the proposition that ownership of a plant must necessarily supersede the rights of the holder of a patent for a gene found in it.⁶⁵ Transported into the law of nuisance, the issues in this case are problematic. Even if the court had accepted that the mutation in the genetic makeup of

⁶² (2001) 12 C.P.R. (4th) 204.

⁶³ (2001) 12 C.P.R. (4th) 204, 242. The terms of the injunction granted at first instance were upheld on appeal: (2002) F.C.A. 309 at paras. 75–78. The injunction granted to Monsanto prevented him from planting or growing seeds which he knows (or ought to know) contain the patented genes, cultivating or harvesting any plant grown from such seeds, or offering for sale, selling, marketing or distributing by any means any and all quantities of seed which includes the patented gene.

⁶⁴ See H. Wilkins and F. Latorre, “Biodiversity at a Crossroads”, (2002) 4 Env. L. Rev. 62, 67ff.

⁶⁵ *Schmeiser v. Monsanto Canada inc. and Monsanto Company* (2002) F.C.A. 309, judgment at para. 51 (Sharlow JA).

Schmeiser's crop was "damage" in the required sense to ground an action in nuisance, he would face difficult issues of causation and proof in establishing liability. The mere presence of the RT73 gene in Schmeiser's crop was sufficient to ground a patent claim by Monsanto. In a nuisance action by an affected grower, however, it is doubtful whether this would suffice. Instead, the additional question of *how* it got there would be a key causative issue in establishing liability in tort, and in *Monsanto v. Schmeiser* this could not be established.

GM CONTAMINATION: A "NATURAL" NUISANCE?

One area where the courts have widened the scope of liability in nuisance is in relation to cases of so-called "natural nuisance". The issues in many natural nuisance cases are superficially similar to those that arise when considering potential nuisance claims for GM contamination. The old decision in *Giles v. Walker*⁶⁶ was often cited for the proposition that one could not claim for damage arising from "natural" occurrences.⁶⁷ This was of dubious authority as a statement of the position in nuisance,⁶⁸ however, and the broad principle this case allegedly established was doubted in *Harrow Corp. v. Davey*.⁶⁹ It was finally exploded in *Leakey v. National Trust*,⁷⁰ which established that where someone has on their land, or growing on it, a hazard which would cause damage if it encroached on a neighbour's property, they are under a duty to do what is reasonable to prevent or minimise that risk.

The cases expound a principle of broad application, namely that "ownership of land carries with it a duty to do whatever is reasonable in all the circumstances to prevent hazards on the land, however they may arise, from causing damage to a neighbour".⁷¹ Moreover, in expanding the potential range of liability for this type of nuisance, the courts have shown an appreciation of the need to update the liability rules to keep pace with changes in our understanding of the toxicity and impact of some types of land use

⁶⁶ (1890) 24 Q.B.D. 656, (1890) 62 L.T. 933 DC.

⁶⁷ The Divisional Court had here held that no action in negligence lay to force a landowner to cut thistles which were, by virtue of wind drift of their seeds, contributing to an infestation on neighbouring land, as they were a natural growth of the soil.

⁶⁸ The potential for liability in nuisance was apparently raised in argument before the Divisional Court, but is only reported in the *Law Times* report of the decision ("By bringing [the land] into cultivation he caused the thistles to grow, thereby creating a nuisance on the land just as much as if he had intentionally grown them. The defendant by entering into occupation of the land with the nuisance on it was under a duty to use and cultivate the land so that it would not cause damage to his neighbour", counsel for the plaintiff at (1890) 62 L.T. 933, 934.). The judgments dismissing the claim make no mention of nuisance.

⁶⁹ [1958] 1 Q.B. 60

⁷⁰ [1980] Q.B. 485.

⁷¹ *Peter Marcic v. Thames Water Utilities* [2002] EWCA 65, at [55] (Phillips L.J.).

activity. In the *Harrow Corporation* case, for example, Lord Goddard C.J. expressly based his reassessment of the need to impose liability for naturally occurring nuisances on the scientific advances made since the Victorian era in understanding the impact of some land-use activities on other property owners, particularly their toxicity.⁷² The “natural nuisance” principle has subsequently been used to ground liability for naturally occurring hazards in a wide range of circumstances. In *Goldman v. Hargrave*⁷³ a landowner was held liable for damage caused by a fire in a red gum tree hit by lightning that had reignited and spread to neighbouring property. Having failed to contain the initial fire, the defendant was liable for continuing the nuisance. This decision was followed in *Leakey v. National Trust*, where liability was imposed for a slippage of rocks and soil from a hill naturally occurring on the Trust’s property onto neighbouring land. Liability has subsequently been imposed for a variety of naturally occurring hazards, including the spread of weeds onto neighbouring land,⁷⁴ encroachment of roots and branches from self sown trees,⁷⁵ flooding of natural watercourses,⁷⁶ loss of support for land due to sea erosion,⁷⁷ and damage by wild birds or animals where reasonable steps to abate the nuisance have not been taken.⁷⁸ Most recently, the principle in *Leakey v. National Trust* has been invoked to ground liability in nuisance where statutory undertakers fail to take appropriate measures to prevent foreseeable incidents of flooding or sewage overflow.⁷⁹

The liability principles developed in the “natural nuisance” cases are closely related to the law of negligence and, unlike the position in other types of nuisance claim, establishing a duty of care is fundamental to liability.⁸⁰ The key difference between cases of private nuisance and “natural” nuisance is that where the nuisance

⁷² “It may be that the court [in *Giles v. Walker*] was disinclined to regard thistledown as sufficiently noxious to be dignified as a nuisance, and in 1890 agriculture was perhaps the least regarded of British industries. We think such an action today, especially if founded on nuisance and not negligence, as was *Giles v. Walker*, might have been decided differently” (*Davey v. Harrow Corp.* [1958] 1 Q.B. 60, 72).

⁷³ [1967] 1 A.C. 6452 All E.R. 989 (P.C.), (1963) 110 C.L.R. 40 (High Court of Australia).

⁷⁴ *French v. Auckland City Corporation* (1974) 1 N.Z.L.R. 340.

⁷⁵ *Davey v. Harrow Corporation* (above note 14).

⁷⁶ *Leakey v. National Trust* [1980] Q.B. 485.

⁷⁷ *Holbeck Hall Hotel Ltd. v. Scarborough Borough Council* [2000] 2 All E.R. 705.

⁷⁸ *Wandsworth LBC v. Railtrack plc* [2001] Env. L.R. 441 (Railtrack held liable for pigeon droppings from a bridge at Balham station, London, onto a road running underneath. Although a naturally occurring hazard, they were liable to take reasonable steps to abate the nuisance, and had failed to do so).

⁷⁹ *Peter Marcic v. Thames Water Utilities* [2002] EWCA 65; *Brybrook Barn Garden Centre Ltd. v. Kent County Council* [2001] Env. L.R. 543.

⁸⁰ In some of the leading cases on natural nuisance the distinction between nuisance and negligence becomes so blurred as to become indistinguishable: see for example *French v. Auckland C.C.* [1974] 1 N.Z.L.R. 340 (below n. 92). And see generally *The Wagon Mound (No. 2) Overseas Tankship (UK) Ltd. v. Miller Steamship Co. Pty. Ltd.* [1967] 1 A.C. 617.

occurs naturally liability arises only if the defendant failed to take reasonable care to prevent foreseeable damage (as in *Leakey* itself). In an ordinary nuisance suit the defendant will be liable for foreseeable damage even if he took all reasonable care.⁸¹ The potential for the application of the natural nuisance principle in cases involving alleged “contamination” by GM crops is obvious. It is also problematic, in that it is far from clear when the courts will view a nuisance as “natural”. The common thread running through the cases is that liability for naturally occurring nuisances will only be imposed where the hazard arises without direct human intervention. Contamination of non-GM crops by cross-pollination is arguably not a “natural nuisance” within the *Leakey* principle: where it occurs this is because of a direct human intervention with nature (the planting of GM crops on neighbouring land) and not independently of it. On the other hand, it could be argued that cross-pollination by wind drift or insects is a “natural” occurrence. This raises the question—what must be “natural”, the source of the hazard itself, or that which makes it hazardous? There are dicta in *Goldman v. Hargrave*⁸² to suggest that the principle could extend to man-made hazards, but the subsequent cases have uniformly limited liability to naturally occurring risks. Were the courts to extend the natural nuisance principle to man-made hazards this would further blur the distinction between this type of nuisance and the strict liability rule in *Rylands v. Fletcher*, where breach of a duty of care is not a prerequisite of liability.⁸³

Adapting the natural nuisance principle for application in relation to alleged GMO “contamination” would also raise a number of other problems, particularly in establishing the necessary duty of care. Foreseeability of damage is an essential ingredient in establishing the duty to guard against naturally occurring nuisances. As we have seen, under the regulatory provisions currently in force under the Deliberate Releases Directive a scientific evaluation of risk is undertaken before GM trial plantings are licensed. In *R. v. Secretary of State for the Environment ex part Watson*⁸⁴ the scientific evaluation of the likelihood of cross pollination of the claimant’s organic sweet corn crop by the GM maize to be grown on the adjoining test site produced a risk assessment showing a

⁸¹ See *The Wagon Mound (No. 2) Overseas Tankship (UK) Ltd. v. Miller Steamship Co. Pty. Ltd.* [1967] 1 A.C. 617, 640 *per* Lord Reid.

⁸² Lord Wilberforce indicated that the courts should recognise “a general duty on occupiers in relation to hazards occurring on their land *whether natural or man made*” (emphasis added) [1967] 1 A.C. 645, 661–662.

⁸³ Although foreseeability of damage is now established as a requirement for strict liability under *Rylands v. Fletcher*, just as it is for nuisance: *Cambridge Water Co. v. Eastern Counties Leather plc* [1994] 2 A.C. 264.

⁸⁴ (1999) Env. L.R. 310.

likelihood of one kernel in a thousand being affected on a worst case scenario if the crops were planted only 200 metres apart. The distance between the two crops was actually two kilometres, and at this distance there was no identifiable risk of cross-pollination occurring. The decision to grant an authorisation was not therefore irrational.

Although the issue arose here in the public law context (a judicial review of the decision to authorise the GM trial), the carrying out of a scientific risk assessment as part of the authorisation process for the commercial planting of GM crops also has relevance to the scope of liability in nuisance. Where a scientific risk assessment has been carried out prior to the issue of a Part B or C authorisation, and this certifies that a negligible risk of damage to crops on neighbouring farms will arise, it is difficult to see how the foreseeability of damage necessary to establish liability in an action for “natural” nuisance could be established. Significantly, the Court of Appeal noted in *ex parte Watson* that the scientific report from the ACRE struck a reasonable balance between the competing interests of the claimant and the proponents of the GM trial. The court here displayed a deference to the scientific evidence of risk which made it unlikely that the balance of reasonableness as between competing land uses (GM and non-GM cropping) would have been decided otherwise had the case been pleaded as a nuisance action.

ECONOMIC LOSS AND THE PROPERTY RIGHTS NEXUS

There is considerable uncertainty as to the extent to which the law of nuisance will provide a remedy for purely economic damage, for example to farmers who lose their certified organic status due to the threat of contamination from nearby GM crops, or who have to sell crops thought to be organic at a discount because they are later found to be “contaminated” with GM matter.⁸⁵ In order to ground a nuisance action, it is not enough that the claimant’s financial interest is prejudiced by the action complained of—there

⁸⁵ The United Kingdom Register of Organic Food Standards accredits organic certification bodies, of which the largest is Soil Association Certification Limited. The Soil Association operates a zero tolerance policy for the presence of GM material in crops when accrediting organic producers. Soil Association Certification Limited has now initiated a proactive testing programme focusing on products thought to be at risk of GM contamination, currently oilseed rape, soya and maize. This recently produced the first positive result of GM contamination of an organic product in the UK—organic Soya was found to be contaminated with Monsanto’s Roundup Ready Soya at a mill producing both organic and non-organic livestock feed. The suspect soya was imported from Italy. See Soil Association Press Release, “GM Contamination of Organic Animal Feed” 14 November 2002. The accreditation system for organic produce operates within a framework laid down in EC law: see Council Regulation (EEC) 2092/91 of 24 June 1991 and Council Regulation (EC) 1804/1999 of 19 July 1999.

must be a substantial interference with the claimant's natural rights *i.e.* with an incident of his ownership and occupation of the land. Once liability is established, however, financial losses flowing naturally from the nuisance will be recoverable provided they are consequential to the nuisance proven.⁸⁶ The issue is not, therefore, whether financial losses are recoverable, but rather whether economic damage to the claimants business suffices, without more, to establish liability in nuisance in the first place.⁸⁷

A closely related question concerns the ability of the law of tort to offer a remedy for an alleged depreciation in the value of land attributable to the introduction of GM crops on nearby holdings. Whether a depreciation in value flows from the introduction of GM technology on farms in an area will be a matter for the market, and will depend upon market-based assumptions as to the relative merits and economic viability of organic and non-organic production systems. As a matter of legal principle, it is clear that purely economic loss is not, in itself, an actionable interference with a claimant's property rights.⁸⁸ However, a reduction in the value of the claimant's property can be evidence of substantial interference with the claimant's use and enjoyment of his property, although it does not of itself amount to an actionable interference.⁸⁹ In *St. Helen's Smelting Co. Ltd. v. Tipping*⁹⁰ Lord Westbury referred to "sensible injury to the value of property" when defining liability for material injury to a property interest. But it remains doubtful, over a hundred and thirty years later, whether a diminution in the selling value of land, without any physical damage, will in itself amount to actionable damage for the purposes of the law of nuisance.⁹¹

This rather restrictive approach sits uneasily, however, with several of the "natural nuisance" cases, in which financial damage to the claimant's business has been held to be recoverable without

⁸⁶ See *Hunter v. Canary Wharf Ltd.* [1997] A.C. 655, 704–706 (Lord Hoffmann).

⁸⁷ The impact of the economic loss doctrine in cases involving contamination by GM crops was examined in the preliminary rulings in the Star Link Corn litigation in the USA: see *In Re Star Link Corn Products Liability Litigation, Marvin Kramer et al. v. Aventis Crop Science USA Holding Inc. et al.* (2002) 212 F.Supp.2d 828, esp. at 838–843. The court there ruled that physical injury to the claimants' property was required to ground an action, and that they could not recover for drops in market prices. However, it also ruled that they could recover for financial losses flowing from crops that were contaminated by Star link corn on neighbouring farms, and losses occasioned by commingling of their product with Star link corn in transport or in storage prior to sale. The further question under consideration here—whether losses flowing from loss of accredited organic status can be recovered—has not been raised in the Star link litigation.

⁸⁸ *Victoria Park Racing v. Taylor* (1937) 58 C.L.R. 457.

⁸⁹ See for example *Harrison v. Good* (1871) L.R. 11 Eq. 338, at 351 (Bacon V.C.); *Moy v. Stoop* (1909) 25 T.L.R. 262, 263 (Channell J.).

⁹⁰ (1865) 11 H.L.C. 642, 650.

⁹¹ See *Thompson-Schwab v. Costaki* [1956] 1 All E.R. 652; *Laws v. Florinplace Ltd.* [1981] 1 All E.R. 659. And see R. Kidner, "Nuisance and Rights of property" [1998] Conv. 267.

being clearly distinguished from damage to land. An example is provided by *French v. Auckland City Council*.⁹² This case concerned contamination by weed seeds drifting onto the plaintiff's land from his neighbour's plot. Both plots were infested with variegated thistles, and the claimant had made intensive efforts to control them. The defendant had not done so, but it was proved that if he had made efforts to control the weed infestation then the claimant would have been able to get the thistles on his own land under control within 2–3 years. As it was, his efforts were thwarted by the continuing spread of thistles by seed from the adjoining plot. In allowing the claim, the New Zealand High Court viewed this as an interference with property, although there was no evidence of physical damage to the land in the traditional sense, the actionable "damage" being the considerable financial harm occasioned by the claimant's need to pay for ongoing thistle eradication and his reduced crop yields.⁹³

This was a "natural nuisance" claim, but distinguishable from a GM case in that the seed drift here was of indigenous thistles (and therefore "natural" in the sense that it arose without human intervention). Even were the English courts to extend the natural nuisance principles to cases involving the planting of GM crops, however, it is unlikely that this would encompass a remedy simply for the loss in land values experienced by neighbouring organic producers. Some support for the view that deliberate releases of GMOs may give rise to loss which is more than purely economic may be derived from the decision in *Blue Circle Industries v. Ministry of Defence*.⁹⁴ The fact that the consequence of the damage there was largely economic was irrelevant, however, as radioactive contamination not only rendered the land valueless but also engaged the owner's legal liability to remove the contaminated topsoil. The regulatory context was therefore different in a number of respects.

ORGANIC PRODUCTION: A "SENSITIVE" LAND USE?

Where the plaintiff is an organic producer, a question will inevitably arise whether this type of land use is hypersensitive. It is

⁹² [1974] 1 N.Z.L.R. 340.

⁹³ The court declined to follow the old English authority of *Giles v. Walker* (1890) 24 Q.B.D. 656, which had held that no nuisance or negligence action lay to force a neighbouring landowner to cut thistles "which are the natural growth of the soil". The court in *French* allowed damages representing lost agricultural production and extra weed control costs.

⁹⁴ [1999] Ch. 289 (CA), above n. 56. See also M. Cardwell, "The release of genetically modified organisms into the environment: public concerns and regulatory responses" [2001] 4 Env. L. Rev. 156, 162ff., J. Lowry and R. Edmunds, "Stigma Damages, Amenity and the Margins of Economic Loss: Quantifying Perceptions and Fears" in J. Lowry and R. Edmunds (eds.), *Environmental Protection and the Common Law* (Oxford 2000), 179.

a well-established principle of private nuisance that “a man cannot increase the liabilities of his neighbour by applying his own property to special uses, whether for business or pleasure”.⁹⁵ If this principle were applied in nuisance cases arising from the release of GMOs to the environment it would completely bar relief, and kill any prospect of using civil liability in nuisance as a mechanism to regulate land uses involving biotechnology.

Although the “hypersensitive land use” principle was not directly at issue in *R. v. Secretary of State ex parte Watson*, the Court of Appeal discussed the difficulties that would be faced by an organic producer seeking to establish liability. Buxton L.J. was pessimistic about the likelihood of success, commenting:

If Watson’s claim were to be pursued in that jurisdiction [private nuisance], difficult questions would arise as to the extent to which he [Watson] was seeking to impose limitations on the National Institute for Agricultural Botany, in a farming area, by the introduction of a specially sensitive crop [*i.e.* his organic sweet corn].⁹⁶

The court was clearly anticipating the successful use of the “hypersensitive land use” defence, first established in Victorian cases,⁹⁷ when the issue of civil liability for GMO releases eventually comes before the English courts. This would not, however, be either appropriate or necessary. Most of the leading cases on hypersensitive land use deal with noxious emissions, a scenario raising quite different considerations, and none of the cases is direct authority for the application of the principle in this context. Neither have the courts always been consistent in their approach to hypersensitivity as a bar to recovery in nuisance.⁹⁸ The principal authority—*Robinson v. Culvert*—was a landlord and tenant case, primarily focused on the landlord’s alleged breach of the covenant for quiet enjoyment in the claimant’s lease. The other leading authority—*Eastern & Southern African Telegraph Co. v. Cape Town Tramways Ltd.*⁹⁹—was decided under the strict liability rule in *Rylands v. Fletcher*, where there is more justification for limiting liability by disallowing claims based on abnormal land uses practiced by the claimant. Significantly, a more flexible view was

⁹⁵ *Eastern & Southern African Telegraph Co. v. Cape Town Tramways Ltd.* (1902) A.C. 381, 393, *per* Lord Robertson.

⁹⁶ (1999) Env. L.R. 310, 323–324.

⁹⁷ Notably *Robinson v. Culvert* (1889) 41 Ch. D. 88.

⁹⁸ Consider for example *Hollywood Silver Fox Farm Ltd. v. Emmett* [1936] 2 K.B. 468, where the principle was not applied in circumstances where the defendant had acted maliciously. The plaintiff’s silver fox vixens were agreed to be abnormally sensitive at breeding time, but the defendants were nevertheless held liable in nuisance for losses flowing from their deliberately firing guns near the pens at night to frighten them, leading some vixens to eat their cubs and others to miscarry.

⁹⁹ [1902] A.C. 381.

taken by the Privy Council in the Canadian case of *McKinnon Industries Ltd. v. Walker*,¹⁰⁰ where a foundry owner was held liable for depositing fumes and sludge residues on the premises of a neighbouring commercial flower grower specialising in rare orchids. Liability was admitted, but the court refused to treat damage to the plaintiff's rare orchid specimens differently from damage to other plants. The question whether orchid growing was a sensitive land use was expressly left open.

Leaving aside the position of organic producers, it is difficult in any event to see how "ordinary" production based neither on the application of GM technology or organic farming principles could be viewed as "hypersensitive". Yet an arable farmer practising neither GM nor organic farming systems may object just as vociferously¹⁰¹ as an organic producer to his crops being contaminated by GM cross pollination, as this will make them more difficult to sell. Despite the reservations expressed in *ex parte Watson*, there is no logical justification for regarding either organic or "ordinary" arable cropping practices as hypersensitive land uses for the purposes of the law of private nuisance, and neither does the extant case law require this.

REGULATORY CONSENTS AND CIVIL LIABILITY

The relationship between the complex authorisation procedures required for the release of GMOs to the environment and the principles of civil liability are far from clear. It is an open question whether an authorisation for the planting of GM crops would constitute statutory authority for the commission of subsequent nuisances, and thus give a defence to potential civil liability suits. The nearest analogy would appear to be cases involving the grant of planning permission for development that is subsequently alleged to constitute a nuisance, or the grant of regulatory consents under (for example) pollution control legislation.

In *Wheeler v. Saunders*¹⁰² it was held that the existence of planning permission for the operation of an intensive pig-rearing farm did not constitute statutory authority giving a defence to a nuisance claim for odour emissions. The court distinguished the statutory authority defence, which signifies parliamentary approval for the activity complained of, from a grant of planning permission that merely renders lawful a land use that would otherwise be unlawful. It is well established, however, that planning permission

¹⁰⁰ (1951) 3 D.L.R. 577.

¹⁰¹ Although possibly with less cause.

¹⁰² [1996] Ch. 19.

may be relevant in the less dramatic sense of changing the character of the locality, a relevant factor if the nuisance claim is for interference with the comfort and enjoyment of property rather than for damage.¹⁰³ In *Wheeler v. Saunders* the alleged nuisance arose from an intensification of an existing land use (pig farming) that had been authorised by planning consent. The court distinguished the cases on the relevance of planning consent in changing the character of a locality, which have relevance only in cases where no damage to person or property is alleged. Similarly, it has been held that the grant of discharge consents under the pollution control legislation does not constitute statutory authority, and therefore does not give a defence to a subsequent nuisance suit arising from effluent discharges licensed under the legislation.¹⁰⁴

In principle, nuisance claims arising from the introduction of GM crops should fall within the principle in the *Wheeler* decision. The planting of GM crops does not change the character of an area as such, rather it represents a subtle change in the nature of agricultural production in the locality. This may, or may not, involve an intensification of production methods, depending on the nature of the GM crops introduced. An authorisation for the trial planting of GM crops issued under the Deliberate Releases Directive should not, in principle, amount to statutory authority constituting a defence to subsequent nuisance actions.

There are also, however, subtler interactions between the regulatory framework for GMO releases and the principles of nuisance. The authorisation process involved in GM releases is more complex and science-focused than the decision making process for determining applications for planning permission for development. In the case of GM releases, the assessment is based on a scientific evaluation of the risk to the environment posed by the GM crops under consideration.¹⁰⁵ Decisions on planning permission applications are determined by reference to a much wider range of relevant factors allowed for under the Town and Country Planning Act 1990. If a GMO authorisation has been granted, however, there will usually have been a precise and exhaustive scientific evaluation, focused specifically on the risk of cross-fertilisation of nearby crops (and of wild plant species) by the GM crop in question.

Although the issue of a GMO authorisation should not constitute statutory authority for the commission of nuisances, the

¹⁰³ *Gillingham Borough Council v. Medway Dock Co. Ltd.* [1993] Q.B. 343.

¹⁰⁴ *Cook v. South West Water plc* [1992] Water Law 103.

¹⁰⁵ Identifying the environmental risks involved is a matter of scientific enquiry. Once the risks have been identified, however, the weighting to be given to them is a matter for the regulator to decide. See further Sampson, "Environmental Risk Assessment of GMOs" (note 2 above).

nature of the risk assessment undertaken within the regulatory framework for releases may impact upon the likelihood of establishing liability. Were the courts to interpret cases of alleged GMO contamination as an extension of the “natural nuisance” principle, establishing breach of a duty of care would become a prerequisite for liability, requiring an assessment of whether the defendant has taken reasonable care to prevent the damage complained of.¹⁰⁶ If, on the other hand, claims for GM “contamination” were to be categorised instead as founded in private nuisance, foreseeability of damage would be a necessary element in establishing liability under the principles established in *The Wagon Mound (No. 2)*,¹⁰⁷ where it goes to the issue of remoteness of damage. The importance of foreseeability of damage as the basis of liability in both public and private nuisance has been increasingly affirmed in recent cases,¹⁰⁸ and was extended to the closely related area of strict liability under the *Rylands v. Fletcher* principle by the House of Lords in *Cambridge Water Co. v. Eastern Counties Leather*.¹⁰⁹ Indeed, Lord Goff concluded in *Cambridge Water* that the assimilation of the rules for remoteness of damage would produce a more coherent body of common law principles if the rule in *Rylands v. Fletcher* was to be regarded as an extension of the law of nuisance to cases of isolated escapes from land.¹¹⁰

The complex nature of the scientific risk assessment undertaken prior to granting an authorisation for the commercial planting of GM crops may make foreseeability of damage difficult to establish. If the issue were to be judged by the scientific evidence available at the time the GM authorisation is granted, then it is unlikely that liability will be established if the advice on which the authorisation was based indicates that a minimal or statistically insignificant risk of cross pollination between GM and non-GM or wild plant species is possible.¹¹¹ The remoteness of damage principles focus instead, however, on the need to establish foreseeability of damage

¹⁰⁶ See *Leakey v. National Trust* [1980] Q.B. 485.

¹⁰⁷ *The Wagon Mound (No. 2) Overseas Tankship (UK) Ltd. v. Miller Steamship Co. Pty. Ltd.* [1967] 1 A.C. 617, 640 *per* Lord Reid.

¹⁰⁸ See for example *Bybrook Barn Garden Centre Ltd. v. Kent County Council* [2001] Env. L.R. 543.

¹⁰⁹ [1994] 2 A.C. 264 (H.L.).

¹¹⁰ [1994] 2 A.C. 264, 306. The escape of chemical solvents into the plaintiff’s borehole was not in fact an isolated one in this case, but a continuing one, a fact which indicated that this would classically have been regarded as a case of nuisance (pp. 306–307). By analogy it is unlikely that the release of GMOs onto neighbouring property, thereby “contaminating” non-GM crops by wind drift or cross pollination by insects, would be regarded as an isolated escape within the *Rylands v. Fletcher* principle, rather than as a straightforward example of a potential private nuisance.

¹¹¹ As in *R. v. Secretary of State for the Environment ex part Watson* (above note 27) for example.

by reference to the scientific knowledge and data available when the act or omission that gave rise to the alleged nuisance took place.¹¹² It follows that if a producer were to plant a GM crop some time after a Part C market authorisation had been granted, and the scientific evidence changed in the interim to indicate that a higher environmental risk than was thought to be the case is present, then in principle it may be possible to establish foreseeability of damage. It is relevant to note that under the 2001 Deliberate Releases Directive GM authorisations will in future have to be renewed every ten years. This will leave less scope for the scientific evidence on which authorisations are based to become obsolete, but this remains a very real possibility given the rate of technological advance in this area.

The proposals in the Draft EC Framework Directive on Environmental Liability are considered in detail below. It is perhaps worth noting in the context of the above discussion, however, that the Draft Directive, although proposing a wider range of liability than is currently offered by the civil law systems of most EU member states, contains a “scientific safeguard” clause¹¹³ under which no liability would attach to emissions or activities which were not considered harmful according to the state of scientific knowledge at the time when the emission was released or activity took place. Neither would liability accrue where a permit or authorisation has been issued to the operator, a defence that would clearly encompass a GM authorisation issued under the Deliberate Releases Directive. Neither defence would apply, however, if the operator has been negligent,¹¹⁴ and the scope of the potential liability to which this might give rise will undoubtedly be one of the issues on which extensive discussion will take place before the final shape of the Directive is agreed.

TOWARDS A PUBLIC LIABILITY REGIME FOR ENVIRONMENTAL DAMAGE?

It can be seen from the foregoing that there is potential for English Law to make provision for civil liability for some kinds of damage to property interests arising from the introduction of GMOs, but that wider damage to ecosystems and biodiversity is unlikely to be remediable within the framework of the law of nuisance. The

¹¹² See Lord Reid’s dictum in *The Wagon Mound (No. 2) Overseas Tankship (UK) Ltd. v. Miller Steamship Co. Pty. Ltd.* [1967] 1 A.C. 617, esp. at 640, and (in the closely analogous area of *Rylands v. Fletcher* liability) the analysis of Lord Goff in *Cambridge Water Co. v. Eastern Counties Leather* [1994] 2 A.C. 264, 306.

¹¹³ See article 9.1 *Proposal for a Directive on Environmental Liability with regard to the prevention and remedying of environmental damage*, COM (2002) 17 final (especially article 9.1 (c) and (d)).

¹¹⁴ Article 9.2, *ibid.*

failure of most EU member states' legal systems to make adequate provision for civil liability for "environmental" damage of this kind was a principal driving factor in the development by the European Commission of proposals for the introduction of general legislation governing environmental liability, to be enacted throughout the Community. This culminated with the publication in January 2002 of the Commission's proposal for a Directive on Environmental Liability.¹¹⁵ This initiative originated in a hastily prepared green paper issued in 1993, which focussed chiefly on traditional damage remediated under member states' civil liability regimes, but suggested a strict liability regime for damage resulting from pollution.

By the time the subsequent White Paper on Environmental Liability was issued by the Commission in 2000,¹¹⁶ its thinking had moved away from establishing a strict liability regime located within the civil law of member states, and had moved instead towards imposing on member states the responsibility (through their administrative direction and cost recovery mechanisms) for ensuring that those who threaten or cause environmental damage should bear the cost of preventing and repairing that damage. The White Paper expressly noted the desire of several member states to ensure that legislation should address the issue of environmental damage caused by the release of GMOs.¹¹⁷ This commitment has been taken forward in the Draft Directive on Environmental Liability, but its provisions are rather more limited than many would wish.¹¹⁸ The Draft Directive is part of a package of measures intended for GMOs. It should be set in the context of the recent revisions to the Deliberate Releases Directive,¹¹⁹ agreement on which was only reached with the European Parliament in the EU conciliation committee on condition that environmental liability for GMOs was addressed within a set timescale.

The liability regime applied under the Draft Directive applies to two different categories of damage—"environmental damage" to which a strict liability regime is applied, and "biodiversity damage" to which a fault-based regime can be applied. Under the Draft Directive member states will be required to ensure that operators whose activities fall within the categories listed in Annex 1 to the Directive must bear the cost of taking action to prevent or to clean

¹¹⁵ COM (2003) 17 final (23 January 2002). See generally [2002] 14 *Environmental Law and Management* 5 (B. Jones).

¹¹⁶ COM (2000) 66 final.

¹¹⁷ COM (2000) 66, Executive Summary.

¹¹⁸ For criticism see Maria Lee, "Tort, Regulation and Environmental Liability", (2002) 22 *Legal Studies* 33.

¹¹⁹ Effected in Council Directive 2001/18/EC. See above note 2.

up such “environmental damage” as they threaten or cause, irrespective of fault. Member states are required to establish strict liability regimes as regards administrative direction to prevent harm, and regarding remedial action to reimburse costs incurred by public bodies in remedial action. As regards biodiversity damage, liability extends to all operators (not just those carrying out Annex 1 activities) to bear the costs of protecting and repairing legally protected wildlife sites. The Commission regards biodiversity damage as a species of damage in respect of which member states civil liability regimes have not developed in a substantial way. This is certainly the case in English law, where the emphasis on the need to prove property damage in the law of nuisance places considerable difficulties in the way of establishing civil liability for this type of harm.

The Draft Directive encompasses environmental damage resulting from both the contained use of GMOs within the scope of Directive 90/219/EEC and deliberate releases of GMOs to the environment within Directive 2001/18/EC. These are both occupational activities listed in Annex 1, which will engage liability under article 3 of the Directive. The Draft Directive is much more limited in its application to damage caused by the release of GMOs to the environment than had initially been anticipated, however. In the first place, the legislation will not be retrospective.¹²⁰ Neither will it apply to “traditional” damage, in the form of damage to the person or goods. Perhaps most importantly, although a wide definition is given to “environmental damage”, as regards biodiversity liability would only extend to damage to the conservation status of natural habitats and species *either* protected under the 1979 Wild Birds Directive¹²¹ or the 1992 Habitats and Species Directive,¹²² or for which areas for protection or conservation have been designated under national legislation.¹²³ In the UK context, this means that liability would only extend to damage to biodiversity in special areas of conservation designated under the Habitats Directive, or to Sites of Special Scientific Interest notified for protection under Part 2 of the Wildlife and Countryside Act 1981.¹²⁴ The Explanatory Memorandum to the Draft Directive explains this geographically restrictive approach in the following terms:¹²⁵

¹²⁰ Article 19, COM (2002) 17 final.

¹²¹ Council Directive 79/409/EEC, [1979] OJ L 103/1.

¹²² Council Directive 92/43/EC, [1992] OJ L 206/7.

¹²³ Article 2.1 (2) and (18) *ibid.* (definitions of “biodiversity” and of “environmental damage”).

¹²⁴ See Wildlife and Countryside Act 1981, s. 28, amended by Countryside and Rights of Way Act 2000, Sched. 9.

¹²⁵ COM (2002) 17, at p. 17.

It is to be noted in relation to the definition of biodiversity for the purpose of the proposal that the definition of “biological diversity” in article 2 of the Convention on Biological Diversity could not be considered at this stage as providing a suitable basis for the proposed regime, including as far as liability be attached to genetically modified organisms is concerned. The Convention’s definition goes beyond habitats and species and subsumes the idea of “variability” so that it could be argued that damage to biological diversity would encompass “variability among living organisms”. Such an approach raises delicate questions as to how such damage would be quantified and what would be the threshold of damage entailing liability.

The Draft Directive also includes a number of exceptions to liability, several of which will have importance in respect of liability for GMOs. No liability would accrue for damage caused by “an emission or event allowed in applicable laws and regulations, or in the permit or authorisation issued to the regulator”.¹²⁶ The complex authorisation procedure for GMO releases under Directive 2001/18/EC may, therefore, preclude liability from arising in cases where it has been authorised under national implementing legislation. Further, no liability would accrue for damage arising from emissions or activities which were not considered harmful according to the state of scientific knowledge at the time when the emission was released or the activity took place.¹²⁷ Finally, biodiversity damage is defined so as to exclude adverse effects which result from an act by the operator which was expressly authorised by the relevant authorities in accordance with provisions implementing the regime for the management of special areas of conservation under the Habitats Directive,¹²⁸ or any provision of national law having an equivalent effect in relation to habitats or species. In the context of the regulatory regime for protected sites in the UK, for example, operational consent granted for an activity in an SSSI under the Wildlife and Countryside Act 1981¹²⁹ would preclude liability.

While the Draft Directive will undoubtedly extend liability throughout the Community, therefore, it is unlikely that this will have a significant effect on damage resulting from GMOs. The Directive would undoubtedly impose more stringent safeguards in wildlife sites designated for protection under the Habitats and Wild Birds Directives, thereby imposing liability for biodiversity damage resulting from the release of GMOs to the environment. The territorial limits placed upon the scope of the proposed liability,

¹²⁶ Art 9.1(c), *ibid.*

¹²⁷ Art 9.1(d), *ibid.*

¹²⁸ See Directive 92/43/EEC, articles 6.2 and 6.3.

¹²⁹ See Wildlife and Countryside Act 1981, s. 28E, as amended by Countryside and Rights of Way Act 2000, Sched. 9.

however, mean that in practice its impact would be minimal. The Natura 2000 network of protected wildlife sites designated under the Habitats Directive will, when complete, extend to about 10% of the territorial extent of the Community. These sites are, in practice, geographically situated mostly in areas unsuitable for the large-scale cultivation of GM crops. The majority of claims arising from the introduction of GM crops are likely to be for economic damage to organic producers' businesses, and environmental damage within non-protected areas or to non-protected species of flora and fauna. These types of claim would not be assisted by the measures in the Draft Directive.

CONCLUSION

The Draft Directive on Environmental Liability represents a retreat by the European Commission from its earlier intention to address the differential (and largely undeveloped) state of civil liability for environmental damage in the member states. In relation to GMOs this is to be regretted, as there is a need for a uniform and coherent approach to civil liability for damage arising from the introduction of GM crops. This will, however, require the development of a clearer distinction between public law remedies (for wider environmental damage) and civil liability in nuisance.

Given the restricted scope of the environmental liability regime posited in the Draft Directive, the law of nuisance may have an important role to play in supplying a civil liability regime in English Law to resolve property rights disputes involving GM crops. If this potential is to be realised, however, a fundamental reappraisal of a number of its basic tenets will be required. The courts could classify cases involving GM crop contamination as either "natural nuisance" cases, or as instances of physical damage to property. An approach based on the principles of natural nuisance would have some advantages for potential claimants, not least the more generous attitude to recovery of economic losses evident in some of the recent decisions. The jurisprudence on "natural nuisance" is, however, closely related to the law of negligence, and establishing the necessary duty of care in GM cases could be difficult where a scientific risk analysis has been carried out under the regulatory regime for GMO releases. If, on the other hand, the courts were to classify alleged "contamination" by GM crops as falling within the scope of nuisance occasioned by physical damage to property, this would introduce a number of different problems. In particular, the rules for identifying those classes of damage for which nuisance can provide a remedy would require

reappraisal to take account of modern methods of scientific discovery and proof. Whichever approach is adopted, the rules dealing with recovery of economic loss by “organic” producers must be clarified, as must the legal status of GM authorisations and their interaction with the rules for remoteness of damage in nuisance.

Establishing a viable civil liability regime for adjudicating on property rights disputes arising from GMO releases will involve an expanded role for the common law. It is worth noting in conclusion that the House of Lords were unpersuaded in *Cambridge Water Co. v. Eastern Counties Leather* of the need to expand common law jurisdiction in the environmental context at a time when extensive legislative frameworks are being put in place to regulate the principal environmental concerns.¹³⁰ The EC Draft Directive on Environmental Liability signals a withdrawal from legislative intervention in the area of liability for GMO releases and, notwithstanding the sentiments expressed in *Cambridge Water*, this is therefore one area of environmental regulation where the common law can legitimately develop an expanded and meaningful role.

¹³⁰ See for example the speech of Lord Goff [1994] 2 A.C. 264, 306.