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## Environmental Permits: Public Property Rights in Private Lands and the Extraction and Redistribution of Private Wealth

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ENVIRONMENTAL PERMITS: PUBLIC PROPERTY  
RIGHTS IN PRIVATE LANDS AND THE  
EXTRACTION AND REDISTRIBUTION OF  
PRIVATE WEALTH

*Jason Scott Johnston\**

There are two ways of ensuring that one person's use of his or her private property does not infringe upon the rights of others. On the approach taken by the common law, there are few if any *ex ante* restrictions on property use. One may operate one's factory, or develop one's land, however one wishes, subject to the constraint that if the property right holder's operation or development infringes upon the established rights of other people, then the property right holder may be liable to pay damages for the harm that her activity has caused to others. And in cases where the activity has caused serious harm with little benefit, the right holder's use may actually be enjoined by the court.

In the modern regulatory state that has developed in the United States, property right holders do not have such freedom. Before a landowner can develop her land or operate her factory, she must often obtain a permit or license not just from state and local regulatory authorities but from federal environmental regulators. Such permit requirements are typically justified on the ground that when activities risk irreversible or noncompensable harm, the *ex post* common-law remedies of damages or an injunction are inadequate. In the modern regulatory state, before a landowner can develop her land or operate her factory, she must meet requirements that regulators have imposed to ensure, they say, that such an activity does not cause such irreversible or noncompensable harm.<sup>1</sup>

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1 See, e.g., *Our Mission and What We Do*, EPA (Sept. 23, 2020), <https://www.epa.gov/aboutepa/our-mission-and-what-we-do>.

Such permit requirements are a fundamental feature of contemporary environmental regulation. Indeed, as Richard Epstein argued in his path-breaking work a quarter century ago, permit requirements are ubiquitous in the modern American regulatory state.<sup>2</sup> As Epstein argued, because permit requirements give regulatory bureaucrats “absolute power to issue or deny permits,” they have effectively “inverted” the distribution of power within the legal system, giving interested regulators vastly more power than that conferred upon neutral judges.<sup>3</sup> Regulators have used this power to coerce private businesses to pay a price for the privilege of doing business. In this way, the regulatory permit power has become an instrument by which regulators take and redistribute private value.

Back in 1995, Professor Epstein famously termed such use of the permit power a “racket,”<sup>4</sup> and as observed very recently by Dave Owen,<sup>5</sup> still today many landowners and conservative critics would agree with the Supreme Court’s description of the process (in *Nollan v. California Coastal Commission*) as an “out-and-out plan of extortion.”<sup>6</sup> However extortionate such deals may be, regulators with permit power may require landowners to bargain with them before developing their land or else face legal sanctions. This Essay explores in more detail how such bargaining has played out under two of the most important permit regimes in federal environmental regulation: wetlands permits under section 404 of the Clean Water Act and incidental take permits under Section 10 of the Endangered Species Act.

These permit regimes flip the common-law system on its head. With their existence (in the case of species) and scope and extent (in the case of wetlands) the product largely of regulations issued by the agencies themselves rather than any direct statutory authority, the wetlands and habitat modification permit regimes transfer a landowner’s common-law development right to federal regulators, creating what are in effect public property rights in private lands. Unlike common-law property rights protection, under which injunctive relief and potential criminal sanctions for violating such an injunction are available only after a court balances the harm caused by the potentially enjoined activity against the social value of that activity, simply by denying a permit, federal regulatory agencies such as the Army Corps of Engineers (for wetlands) and the U.S. Fish and Wildlife Agency (for species) can unilaterally trigger the accrual of fines and risk of imprisonment. These agencies both hold the public property right and can trigger sanctions for its violation. Bargaining in the shadow of such sanctions, private landowners trade away rights, diminishing the value of their lands, in

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2 See Richard A. Epstein, *The Permit Power Meets the Constitution*, 81 IOWA L. REV. 407, 407 (1995).

3 *Id.* at 413.

4 *Id.* at 416.

5 Dave Owen, Essay, *The Conservative Turn Against Compensatory Mitigation*, 48 ENV’T L. 265, 287–88 (2018).

6 483 U.S. 825, 837 (1987) (quoting *J.E.D. Assocs., Inc. v. Town of Atkinson*, 432 A.2d 12, 14 (N.H. 1981)).

exchange for permission that frees them from the risk of legal sanction. As a legal matter, regulators may value the harm to private land value caused by their interpretation of what permit regimes require at any value they wish. Regulators typically allow landowners some measure of development provided that the landowner pays a sum of money to a private firm that promises to use the money to preserve undeveloped land elsewhere. Thus, in the central paradox of modern environmental permitting, in practice, the system of ex ante permits—justified by the need to prevent irreversible and noncompensable harm—has become one in which government allows private development provided that some private landowners make a wealth transfer to other private landowners.

## I. PERMIT REQUIREMENTS

### A. *Wetlands and Endangered Species Permit Requirements and the Deals They Induce*

Many of the most important recent Supreme Court decisions involving federal environmental regulation involve instances where regulators have pushed to extend the scope of private activities that must get a federal permit in order to be undertaken without risk of sanction. The two most economically significant such permit programs are those involving wetlands and endangered species.

Section 404 of the Clean Water Act prohibits the unpermitted discharge of dredge or fill material into “navigable waters,”<sup>7</sup> which in turn is defined by that statute as “the waters of the United States.”<sup>8</sup> Since 1977, the U.S. Army Corps of Engineers (“USACE”), the agency with statutory authority to grant dredge and fill permits, has by regulation defined “the waters of the United States” as including some wetlands.<sup>9</sup> The Corps defines wetlands as areas that are saturated with sufficient frequency and duration so as to support vegetation that either prefers or requires such soil conditions.<sup>10</sup>

Over the decades, the USACE has extended the Clean Water Act’s permit requirement to wetlands that are located farther and farther away from any body of water that is navigable in any sense. In 1985, in *United States v. Riverside Bayview Homes, Inc.*, the Court upheld the USACE in requiring a private landowner to obtain a permit before filling and developing eighty acres of marshland near the shore of Lake St. Clair.<sup>11</sup> During the 1980s and 1990s, the USACE extended its wetlands permit requirement far beyond wetlands that were adjacent to navigable water. In *Solid Waste Agency v. U.S. Army Corps of Engineers*, the Court decided whether the USACE could require a wetland fill permit from a consortium of northern Illinois towns that were seeking to convert into a solid waste landfill a sand and gravel pit mining

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7 Clean Water Act of 1977 § 404, 33 U.S.C. § 1344 (2018).

8 *Id.* § 1362(7).

9 33 C.F.R. § 328.3(a)(2) (2019).

10 *Id.* § 328.3(c)(4).

11 474 U.S. 121, 124, 139 (1985).

operation that had been abandoned decades before.<sup>12</sup> The location was nowhere near a navigable waterway, but the pits and depressions left over from the mining operations filled with water, providing habitat for migratory waterfowl.<sup>13</sup> The Court struck down this attempted extension of the federal wetlands permit requirement as likely intruding too far into traditional state and local regulatory authority over land use.<sup>14</sup> Just five years later, in *Rapanos v. United States*, the Court said that the USACE could not require wetlands permits from Michigan landowners who backfilled sometimes swampy lands connected to navigable waters only through various drains and ditches.<sup>15</sup> Again concerned that extension of the USACE's permitting requirement to such land development activities would intrude into a core area of state and local regulatory authority, thus pushing "the envelope of constitutional validity," Justice Scalia's opinion for the plurality held that the USACE could require permits only for the development of "those wetlands with a continuous surface connection to bodies [of water] that are 'waters of the United States' in their own right," such as rivers and lakes.<sup>16</sup>

In a concurring opinion in *Rapanos*, Justice Kennedy set out an alternative definition of a wetland subject to the federal permitting requirement.<sup>17</sup> Under Justice Kennedy's definition, the USACE may require a permit from any landowner whose lands contain wetlands that "either alone or in combination with similarly situated lands in the region, significantly affect the chemical, physical, and biological integrity of other covered waters more readily understood as 'navigable.'"<sup>18</sup> Justice Kennedy's definition of statutory wetlands tracks very closely the USACE's own preferred definition. As there was no majority opinion in *Rapanos*, the USACE took Justice Kennedy's definition as the controlling law.

Since that time, individual USACE district engineers have made case-by-case determinations of not only what constitutes a wetland, but when the filling of such wetland, when combined with other "similarly situated lands in the region," would "significantly" impact the chemical and biological integrity of waters that are actually navigable in some sense (or, as Justice Kennedy put it, that are "more readily understood" as navigable).<sup>19</sup> To say that such determinations are unpredictable and uncertain would be a vast understatement. Landowners who have paid consultants to determine that their lands do not contain federally regulated wetlands have often been shocked to discover that the USACE disagrees and that they cannot realize the full value of their lands that they anticipated and must instead turn over a substantial fraction of that value to the public.

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12 531 U.S. 159, 163 (2001).

13 *Id.* at 164.

14 *Id.* at 163.

15 547 U.S. 715, 757 (2006) (plurality opinion).

16 *Id.* at 738, 742.

17 *Id.* at 780 (Kennedy, J., concurring in the judgment).

18 *Id.*

19 *Id.*

This is vividly, and tragically, displayed by the story of John Duarte and Duarte Nurseries.<sup>20</sup> In 2012, Duarte acquired 445 acres of land located in rural Tehama County in north central California.<sup>21</sup> Since the arrival of the Spanish in California, the land had mostly been used for grazing, but in the latter part of the twentieth century, the property had been used for wheat farming; indeed, the U.S. Department of Agriculture classified it as containing (for purposes of federal agricultural programs) 430.7 acres of “wheat base.”<sup>22</sup> Like many farms in that part of California, Duarte’s land consisted of gravelly clay soil, and after wheat farming ended, the land reverted to rolling grassland.<sup>23</sup> When California experiences a wet winter, rain collects in the swales of such grassland, forming small ponds called vernal pools.<sup>24</sup> These pools typically evaporate over the course of the dry California summer and fall, but while they exist they provide a habitat for fairy shrimp.<sup>25</sup> Duarte knew about these pools and hired an environmental consultant to determine their location and extent.<sup>26</sup> In November 2012, Duarte then spent \$50,000 in hiring a contractor to plow four-to-seven inches deep to ready his fields for winter wheat planting.<sup>27</sup> He told the contractor to avoid the vernal pools that the consultant had identified.

When Duarte spoke with the USACE at that time and told them he was going to farm his land, nothing was said to indicate he would need a wetlands fill permit.<sup>28</sup> However, sometime later in 2012, a USACE project manager drove past Duarte’s field as it was being plowed and decided during this drive that Duarte’s field was being tilled too deeply, so deeply that it went beyond normal farming and instead constituted “deep ripping,” a practice that the USACE views as a form of wetlands fill.<sup>29</sup>

Three months later, the USACE issued a cease and desist order, notifying Duarte that, by plowing his fields, he had filled wetlands without a permit.<sup>30</sup> According to the USACE, under its 1994 definition of a wetland, there were wetlands “scattered throughout”<sup>31</sup> Duarte’s property, and, as demon-

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20 These facts are taken from Complaint, Duarte Nursery, Inc. v. U.S. Army Corps of Eng’rs, 17 F. Supp. 3d 1013 (E.D. Cal. 2014) (No. CIV. S.–13–2095), and also from Robin Abcarian, *A Land-Use Case That’s Enough to Furrow a Farmer’s Brow*, L.A. TIMES (Jan. 15, 2016), <https://www.latimes.com/local/abcarian/la-me-0115-abcarian-farmer-wetlands-20160115-column.html>.

21 Complaint, *supra* note 20, at 8; Abcarian, *supra* note 20; U.S. Department of Justice Expert Team Report at 82, *Duarte Nursery, Inc.*, 17 F. Supp. 3d 1013 (No. CIV. S.–13–2095) [hereinafter Document 129-2].

22 Complaint, *supra* note 20, at 8.

23 Abcarian, *supra* note 20.

24 *Id.*

25 *See id.*

26 Complaint, *supra* note 20 at 8–9; Abcarian, *supra* note 20.

27 Complaint, *supra* note 20, at 9; Abcarian, *supra* note 20.

28 Complaint, *supra* note 20, at 9.

29 Abcarian, *supra* note 20.

30 Complaint, *supra* note 20, at 9.

31 *Id.* at 10.

strated by dozens and dozens of photos that USACE employees took on the Duarte property, the three-to-four inch high furrows that Duarte's contractor had created when he plowed the property were actually "small mountain ranges" that discharged fill (i.e., plowed dirt) into the wetlands.<sup>32</sup>

Duarte sued the USACE in federal court, contesting both the factual and legal bases for the USACE's cease and desist order. Duarte argued, among other things, that the 1994 wetlands delineation manual used by the USACE had been superseded by a 2012 delineation manual that incorporated the correct legal standard and that he had avoided all wetlands so classified under the more recent manual.<sup>33</sup> He also argued that all of his actions in planting a wheat crop were normal farming practices that were exempt from Clean Water Act wetlands permitting requirements.<sup>34</sup>

One portion of Duarte's property as it looked after being plowed is depicted in Figure 1 below.<sup>35</sup> In the figure, one sees the field and a small springtime flow of the type that the USACE deemed to be a regulated wetland. Both such flows and the vernal pools on Duarte's property are at most seasonal. They are not adjacent to any navigable waterway. Some of the flows and pools are near a small, equally variable stream called Coyote Creek. About twelve miles from Duarte's property, Coyote Creek flows into the Sacramento River. But the USACE did not justify its jurisdiction on the grounds that Duarte's property met the *Rapanos* plurality's definition of a wetland as a "continuous surface connection to bodies [of water] that are 'waters of the United States' in their own right," such as rivers.<sup>36</sup> Instead, the USACE said the "wetland depressions and swales on the Duarte Site" were wetlands subject to a permit requirement because "together with those similarly situated streams and wetlands within the Coyote Creek watershed [they] are an integral part of and have a significant nexus with the Sacramento River given their ecological and functional relationships."<sup>37</sup> Thus, the USACE asserted jurisdiction under Justice Kennedy's concurring opinion definition.<sup>38</sup>

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32 Abcarian, *supra* note 20.

33 Complaint, *supra* note 20, at 8–10.

34 *Id.* at 10 (invoking section 404(f)(1)(A) of the Clean Water Act).

35 Document 125-5, Duarte Nursery, Inc. v. U.S. Army Corps of Eng'rs, 17 F. Supp. 3d 1013 (E.D. Cal. 2014) (No. CIV. S.–13–2095).

36 *Rapanos v. United States*, 547 U.S. 715, 742 (2006) (plurality opinion); see Document 129-2, *supra* note 21, at 151.

37 Document 129-2, *supra* note 21, at 151.

38 See *Rapanos*, 547 U.S. at 780 (Kennedy, J., concurring in the judgment).

FIGURE 1: INTERMITTENT FLOW ON THE DUARTE PROPERTY



Duarte's suit raised a number of serious legal and factual issues, and although failing at the trial court level,<sup>39</sup> it might well have eventually succeeded. However, under the Clean Water Act (CWA), even negligently discharging a pollutant into the "waters of the United States" without a USACE permit can subject the landowner to criminal penalties of up to \$25,000 per day, while "knowing" discharges can mean criminal penalties of up to \$50,000 per day.<sup>40</sup> As Duarte's "discharge" occurred when he plowed his fields in November 2012,<sup>41</sup> while pursuing a lawsuit to establish that he was not legally obligated to even get a permit, by 2017, the USACE said that he owed over \$40,000,000 in fines.<sup>42</sup> Rather than risk an even higher penalty by continuing to pursue his litigation, Duarte settled his case in August 2017 by agreeing to pay a civil penalty of \$330,000 to purchase \$770,000 worth of vernal-pool mitigation credits, and to perform remediation work in areas where he had plowed.<sup>43</sup> As Duarte explained:

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39 *Duarte Nursery, Inc.*, 17 F. Supp. 3d at 1026.

40 See 33 U.S.C. § 1319(c)(1)–(2) (2018).

41 See Complaint, *supra* note 20, at 9.

42 See John Herath, *Duarte Nursery Settles with Corps of Engineers for \$1.1 Million*, AGWEB (Aug. 15, 2017), <https://www.agweb.com/news/crops/wheat/duarte-nursery-settles-corps-engineers-11-million>.

43 Consent Decree at 6, 8, *Duarte Nursery, Inc.*, 17 F. Supp. 3d 1013 (No. 2:13-CV-02095).



[G]iven the risks posed by further trial on the government's request for up to \$45 million in penalties, and the catastrophic impact that any significant fraction of that would have on our business, our hundreds of employees, our customers and suppliers, and all the members of my family, this was the best action I could take to protect those for whom I am responsible.<sup>44</sup>

*B. The Market for Site-Specific Permits and the Environmental Impact Mitigation Business That It Has Created*

Duarte's decision to comply with the USACE's demands is one that has been replicated by thousands of landowners across the country. Just over the period 2010–2014, the USACE issued 56,400 written authorizations under various statutory permitting requirements (not just the section 404 wetlands permit requirement).<sup>45</sup> Section 404 wetlands fill permits are costly to obtain. The cheapest section 404 permits are nationwide permits, general permits for activities that have minimal impacts (generally less than 0.5 acres of fill). Among the most common activities for which the USACE grants nationwide permits are linear transportation projects, river bank stabilization, and aquatic habitat restoration.<sup>46</sup> Individual permits are granted for site-specific fill activities with bigger impacts. Even a standardized nationwide section 404 permit is not cheap, with the average applicant (as of the early 2000s) spending 313 days and \$28,915.<sup>47</sup> Individual permits, such as the one eventually granted to Duarte as part of his settlement, are much more expensive, costing the applicant an average of 788 days and \$271,596.<sup>48</sup>

The 313 days required on average for a landowner to get even a relatively inexpensive nationwide permit is highly significant. Most USACE permits issued under section 404 are not individual permits, such as that obtained at a cost of over \$1 million by Duarte. The vast majority are general permits—either nationwide or regional—for “small or routine actions that are similar in nature and typically have only minor environmental impacts.”<sup>49</sup> For example, of the 285 permits issued by the Norfolk, Virginia, USACE region over the period April–May 2017, only seven were standard, individual

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44 Herath, *supra* note 42.

45 FORREST VANDERBILT, STEVEN MARTIN & DAVID OLSON, INST. FOR WATER RES., 2015-R-03, THE MITIGATION RULE RESTROSPECTIVE: A REVIEW OF THE 2008 REGULATIONS GOVERNING COMPENSATORY MITIGATION FOR LOSSES OF AQUATIC RESOURCES 11 (2015), <https://www.iwt.usace.army.mil/Portals/70/docs/iwtreports/2015-R-03.pdf>.

46 See WSDOT LIAISON PROGRAM, U.S. ARMY CORPS OF ENG'RS SEATTLE DIST., WASH. STATE DEP'T OF ECOLOGY, CLEAN WATER ACT SECTION 404 AND 401 (& SECTION 10 OF THE RIVERS AND HARBORS ACT): PERMITTING WORKSHOP 11 (2018), <https://wsdot.wa.gov/sites/default/files/2018/05/22/environmental-permitting-workshop-404-and-401.pdf>.

47 David Sunding & David Zilberman, *The Economics of Environmental Regulation by Licensing: An Assessment of Recent Changes to the Wetland Permitting Process*, 42 NAT. RES. J. 59, 74–76 (2002).

48 *Id.*

49 Regulatory Permitting Program Pamphlet, U.S. Army Corps of Eng'rs Norfolk Dist., <https://www.nao.usace.army.mil/Missions/Regulatory.aspx> (select “Regulatory Info Pamphlet”).

permits.<sup>50</sup> But this means that for about 200 projects over just a two-month period in a single USACE region, landowners had to wait almost a full year for a permit. There is no exemption from potential CWA criminal liability even for landowners whose activities have only “minor” environmental impacts, entitling them to a general permit. Hence, even for projects with hardly any environmental impact, the landowner must wait a full year for a permit or else risk criminal sanctions for developing her land.

The vast number of general permits routinely required by the USACE belies the argument of Eric Biber and J.B. Ruhl—made in their critique of Epstein’s concerns about permits as a “racket”—that because of the availability of general permits, wetlands permitting actually is a system of entitlements in which the “default rule” is that the landowner has permission to develop, with “some action” by the USACE necessary to “shift to a prohibition in particular cases.”<sup>51</sup> It is hard to see how a legal regime in which landowners on average have to wait a year and spend about \$29,000 to get a regulatory permit for land development with only a “minor” environmental impact or else face potential criminal sanctions constitutes one in which landowners have permission to develop.

### C. *Wetlands Permits and the Mitigation Business They Have Created*

As is to be expected given the frequency with which general versus individual permits are granted, the vast majority of the time, the USACE has deemed the impact of a permitted activity to be de minimis, requiring no mitigation. But for 10% of the authorizations granted over the period 2003–2008, or about 5600, it required compensatory mitigation.<sup>52</sup> Sometimes such mitigation consists of steps taken by the landowner to minimize the loss of wetlands on her property, but about half the time, the landowner can meet her mitigation requirement either simply by paying a fee (11% of the time over the 2010–2014 period) or by buying mitigation credits from a wetlands mitigation bank (41% of the mitigation over the 2010–2014 period).<sup>53</sup>

Such a mitigation credit purchase, to the tune of \$770,000, was the costliest component of the settlement in the Duarte case. Credits are offered for sale by private wetlands mitigation banks that purchase lands with wetlands and then commit to preserve such wetlands through devices such as conservation easements. Landowners who have agreed with USACE to mitigate the loss of wetlands caused by their own land development can then buy preserved wetlands credits from mitigation banks that have been approved by USACE. Wetlands credits represent wetlands located elsewhere that typically

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50 See *Issued Permits*, U.S. ARMY CORPS ENG’RS, NORFOLK DIST. <https://www.nao.usace.army.mil/Missions/Regulatory/Issued-Permits/> (select April and May 2017 to download spreadsheets).

51 Eric Biber & J.B. Ruhl, *The Permit Power Revisited: The Theory and Practice of Regulatory Permits in the Administrative State*, 64 DUKE L.J. 133, 159 (2014).

52 VANDERBILT ET AL., *supra* note 45, at 11.

53 *Id.*

have been preserved by being included in conservation easements on private land. By their express language, such easements permanently preclude development of lands subject to the easement.

Wetlands mitigation banking was a regulatory agency creation. It took off after the Environmental Protection Agency (EPA), the USACE, and the Agriculture Department's Soil Conservation Service issued guidance in 1995 clarifying the requirements that wetlands banks had to meet in order to be eligible to sell mitigation credits to landowners.<sup>54</sup> According to the EPA, in 1992, there were only 46 permitted wetland mitigation banks, and most of these were wetlands that had been acquired and preserved by state agencies or large corporations so as to generate credits they could use to cover wetlands lost by their own land development.<sup>55</sup> By the end of 2001, there were 219 approved wetland mitigation banks with 139,000 acres of wetlands nationwide.<sup>56</sup> Most of these were started by entrepreneurs who sold wetland mitigation credits on regional markets.

Over the years, the wetlands mitigation credit market has grown steadily. By the end of 2014, the USACE had approved 1428 mitigation bank sites.<sup>57</sup> As of January 2021, just for the Jacksonville, Florida, USACE region, there were 182 mitigation banks loaded into the Regulatory In-lieu Fee and Bank Information Tracking System ("RIBITS") database.<sup>58</sup> Some of these are inactive, and so the number is an overestimate. However, hundreds of thousands of acres are now included in wetlands mitigation banks. The total amount of wetland acres being mitigated varies directly with the level of land development activity. During the housing boom years of 2002 to 2006, the USACE required about 49,000 acres of wetland mitigation per year. Over the recessionary period of 2007 to 2014, a little less than 30,000 acres per year were mitigated. Still, over the period of 2006 to 2014, the USACE required over 400,000 acres of wetland mitigation.<sup>59</sup>

#### D. *Species Preservation and the Rise of Habitat Conservation Banks*

The amount of wetlands that the USACE has required private landowners to preserve in order to get a section 404 permit is not insignificant, but it is far smaller than the amount of land preserved under a similar permitting program under section 10 of the Endangered Species Act of 1973.<sup>60</sup> Section 9 of the Endangered Species Act makes it unlawful to "take" any endangered species, and that same statute defines "take" as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in

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54 *Mitigation Banks Under CWA Section 404*, EPA (Apr. 16, 2019), <https://www.epa.gov/cwa-404/mitigation-banks-under-cwa-section-404>.

55 *Id.*

56 *Id.*

57 VANDERBILT ET AL., *supra* note 45, at 11.

58 *See Banks & Sites*, RIBITS, [https://ribits.ops.usace.army.mil/ords/f?p=107:158::NO::P0\\_FFF\\_ID:29](https://ribits.ops.usace.army.mil/ords/f?p=107:158::NO::P0_FFF_ID:29) (last visited Feb. 24, 2021) (filtering results for Jacksonville, Florida).

59 VANDERBILT ET AL., *supra* note 45, at 27.

60 *See* Endangered Species Act of 1973 § 10, 16 U.S.C. § 1539 (2018).

any such conduct.”<sup>61</sup> Under regulations promulgated in 1981, the U.S. Fish and Wildlife Service (“USFWS”) defines “harm” and “take” to include “significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.”<sup>62</sup> Under this regulatory definition, if privately owned land happens to provide habitat for an endangered species, the landowner’s development of her land may constitute a “taking” of an endangered species. Under section 11 of the Endangered Species Act, businesses that violate the law by “taking” a protected species through land development are not only liable for up to \$25,000 in fines per violation.<sup>63</sup> In addition, any person who “knowingly” violates section 9 is subject to criminal penalties, including potential imprisonment.<sup>64</sup>

Just as the Clean Water Act gives the USACE the authority to grant permits allowing private land development that “discharges” a pollutant into a wetland, so too does the Endangered Species Act (ESA) give the USFWS the authority to grant permits for land development that significantly modifies the habitat of an endangered species. Under section 10 of the ESA, the USFWS may grant a permit for “any taking otherwise prohibited” under section 9 if it finds that “such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity.”<sup>65</sup>

In several high-profile cases, private landowners challenged the USFWS’s interpretation that taking a species could be accomplished quite unintentionally, through private land development. They generally lost, and then the matter was settled for good when the Supreme Court upheld the regulation in *Babbitt v. Sweet Home Chapter of Communities for a Great Oregon*.<sup>66</sup> Once significant habitat modification was established as something that could trigger potential criminal liability unless the landowner first obtained a permit, section 10 became the basis for negotiations in which landowners promised to preserve (or acquire) species habitat in exchange for a section 10 incidental take permit granted by the USFWS.<sup>67</sup> The negotiated deals, called Habitat Conservation Plans, are often more complicated than wetland mitigation agreements, in that they involve participation not just by the landowner, the USACE, and wetland mitigation providers, but also various state and local government entities.<sup>68</sup> But like section 404 wetlands permit authorizations, they occur because without an incidental take permit, a private landowner

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61 *Id.* § 1532(19) (emphasis added).

62 50 C.F.R. § 17.3 (2019).

63 16 U.S.C. § 1540(b)(1).

64 *Id.*

65 *Id.* § 1539(a)(1)(B).

66 515 U.S. 687, 708 (1995).

67 16 U.S.C. § 1539(a)(1)(B).

68 See *Endangered Species Permits Fact Sheet*, U.S. FISH & WILDLIFE SERV., [https://www.fws.gov/midwest/endangered/permits/hcp/hcp\\_wofactsheet.html](https://www.fws.gov/midwest/endangered/permits/hcp/hcp_wofactsheet.html) (last visited Feb. 24, 2021).

whose development is deemed to constitute significant habitat modification risks potentially large fines and criminal liability.<sup>69</sup>

With regulatory assurances that an incidental take permit would insulate them from any potential liability, landowners have set aside vast amounts of private land as preserves for endangered species. For example, by the early 2000s, landowners large and small across the southern United States had protected hundreds of thousands of acres of privately owned pine forests as protected habitat for the red-cockaded woodpecker.<sup>70</sup> Overall, between 1993 and 2008, USFWS granted 601 incidental take permits, under which about 48 million acres of private, state, and local lands—over 2% of total U.S. land area and 3% of nonfederal land—were devoted to species protection.<sup>71</sup>

As is true with wetlands mitigation required by the USACE, very often the USFWS allows landowners to obtain a required incidental take permit by buying credits from a habitat conservation bank. With wetlands mitigation banking as a model, habitat conservation banking began in the mid-1990s in California.<sup>72</sup> As it is home to a relatively large number of endemic, protected species, by 2002, there were 30 conservation banks in California.<sup>73</sup> After the USFWS released federal guidelines in 2003 setting forth the requirements that a conservation bank had to meet to be able to sell credits, such banking expanded into more states. And as of August 2019, there were 158 approved conservation banks protecting the habitats of 71 species loaded on the RIBITS national database.<sup>74</sup> Habitat conservation banks are species specific. For example, as of 2013, there were 18 banks conserving habitat for the California tiger salamander. Prices vary tremendously across habitat types. As of 2010, for example, the price of a vernal-pool preservation credit—the type of habitat found on Durate’s land—was as high as \$325,000 per credit, while in the same year, the price of a credit for Utah prairie dog habitat was only \$1836.<sup>75</sup> As on any market, prices reflect demand and supply. Rapid development and expansion of the Salt Lake City metro area has increased demand for Utah prairie dog habitat credits, but such habitat is also in relatively abundant supply outside the Salt Lake metro area.

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69 U.S. FISH & WILDLIFE SERV., HABITAT CONSERVATION PLANS UNDER THE ENDANGERED SPECIES ACT 1 (2011), <https://www.fws.gov/endangered/esa-library/pdf/hcp.pdf>.

70 See Jim Carlton, *Businesses, Greens Seek to Compromise on Issues*, WALL ST. J. (Apr. 23, 2003), <https://www.wsj.com/articles/SB105113076786383300>.

71 William S. Eubanks II, *Subverting Congress’ Intent: The Recent Misapplication of Section 10 of the Endangered Species Act and Its Consequent Impacts on Sensitive Wildlife and Habitat*, 42 B.C. ENV’T AFFS. L. REV. 259, 283 (2015).

72 Jessica Fox & Anamaria Nino-Murcia, *Status of Species Conservation Banking in the United States*, 19 CONSERVATION BIOLOGY 996, 997 (2005).

73 *Id.* at 998.

74 Amanda Zhang & Katie Allen, *Species and Habitat Conservation Banking*, CONSERVATION FINANCE NETWORK (Sept. 30, 2020), <https://conservationfinancenetwork.org/2020/09/30/species-and-habitat-conservation-banking>.

75 *Id.*

*E. Winners and Losers from Wetlands and Habitat Mitigation Markets*

Relative to a world in which wetlands and species permit requirements directly restricted land development at particular sites, mitigation markets alter the distribution of the benefits and costs of wetlands and species habitat preservation. Other things equal, the market incentive to find, preserve, and then sell credits for wetlands and species habitat increases the supply of such lands. This lessens both the private and social cost of preserving such lands.

On the other hand, by using the criminal sanctions backing the permit power to force some landowners to buy wetlands and species habitats that are preserved offsite, federal environmental regulators effect a transfer of wealth from private land developers to private land preservers. Not only do regulators use the permit power to coerce landowners who wish to develop their land to incur the cost of providing the public goods inherent in wetlands and species preservation, but they also enable other private landowners to profit from such coercion. Wetlands and species habitat banks often are created when private landowners impose conservation easements on some portion of their lands. As is well known, the tax benefits from imposing such easements accrue primarily to wealthier individuals. To the extent that wealthy individuals are the providers of wetlands and species habitat mitigation credits, the existence of mitigation markets raises the specter of forcing landowners who are developing their lands to conduct a business, such as Duarte, to pay wealthier landowners—who might well have no interest in developing their lands in any case—merely for the privilege of doing business. Such a prospect brings chilling echoes of earlier eras in both France and England, when the rentier class demanded tribute from rising bourgeoisie with the temerity to use their lands for industrial development.

*F. The Economics of Private Value Extraction Through Permit Requirements*

First set out half a century ago, the distinction between property rights and liability rules has proven to be one of enduring insights of law and economics.<sup>76</sup> Under a liability rule, a landowner may use her land as she sees fit, subject to potential damage liability if she is found to have caused harm to other landowners or other people. Under a property right, each landowner has a right to enjoin adjacent landowner activities that cause such harm to her. Under the liability rule, a court determines the magnitude of harm caused by a landowner's activities. The liability rule says that landowners may use their land as they wish, but that they must pay for the harm they cause. Under the property right, the landowner does not have such a right. If her use causes harm to neighbors, then that use may be enjoined. Under the supposition that such an injunction is backed up with sufficiently tough sanctions—fines and imprisonment—the injunction halts the use, and it may be resumed only if the enjoined landowner is able to offer some sort of deal—

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76 See generally Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

perhaps involving a payment plus changes in the way she is using her land—that the complaining adjacent landowner is willing to accept.

Viewed in light of this distinction between property rights and liability rules, one can conceptualize the federal wetlands and species protection regulatory systems as giving federal agencies a property right in wetlands and species. For understanding the economic consequences of the wetlands and species permitting regimes, however, it is more useful to think of these regimes not as giving government agencies a property right in wetlands and species, but as changing the status quo allocation of property rights by taking private landowners' common-law right to land development and transferring it to federal environmental agency bureaucrats. Thus, environmental permitting regimes award an entitlement to the inverse of land development, land preservation, to federal agencies.

These permitting regimes are thus similar to but go beyond a system of reverse eminent domain. Under eminent domain, the government can take private property rights but must, under the Fifth Amendment, pay just compensation for the rights taken.<sup>77</sup> Eminent domain is a liability rule approach to forced land transfers to the government. Under the reverse eminent domain environmental permits regime, a government agency may declare itself the holder of a right to preserve private land in an undeveloped state, with the private landowner then subject to a regulatory cease and desist order should she try to exercise a development right that she no longer owns. A landowner can bargain around the cease and desist order, buying back the right to develop, but otherwise has no right to develop and can be criminally prosecuted for violating the cease and desist order. Whereas under eminent domain, the government can take private property for a public use provided that it pays. Under the reverse eminent domain environmental permitting system, the government holds a right to prohibit land development *plus* the power to issue cease and desist orders, which automatically trigger potential criminal liability. In this way, the permitting power is like a super property rights regime, where the sanction for violating the right begins to accrue even before a court has determined that the right actually exists.

The reverse eminent domain regime created by the wetlands and endangered species permit requirements generates incentives that are almost certain to prevent socially desirable private land development. Why this is so can be understood by comparing bargaining between a landowner and a regulatory agency asserting a public property right created by an environmental permitting regime with bargaining between a landowner holding a private property right and an adjacent landowner. With private property rights, a new owner may show up next door and demand that the landowner cease her operations on the grounds that those operations constitute a nuisance. Such operations might consist, for example, of a factory poultry farm that generates both noxious fumes and large amounts of polluted wastewater. But in most U.S. states, a court will find a legally actionable nuisance only if it

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77 U.S. CONST. amend V.

deems the harm caused to the adjacent landowner to be both substantial and unreasonable, where the harm is “unreasonable” only if the court finds that the “gravity of the harm outweighs the utility of the actor’s conduct.”<sup>78</sup> It is true that in some states, a nuisance finding follows for any “substantial” harm. But in those states, as well as those that require a finding of “unreasonable” harm, a court will not issue an order enjoining the nuisance unless it finds that the harm from the legal nuisance greatly outweighs the social benefit of that activity.<sup>79</sup> Crucially, a landowner faces no threat of fines or imprisonment unless and until a court has decided that an injunction is required. Until such an order issues, our poultry farm owner-operator incurs no potential civil fine or criminal liability.

Under the private law nuisance regime, any landowner’s legal right to be free of harm caused by another landowner’s development activity is contingent—dependent upon the outcome of the court’s *ex post* balancing of harm and utility. And until the right is determined, the developing landowner faces no liability from continuing to pursue her development. Under such a legal regime, in bargaining to find a price at which the landowner will agree to desist from her development, the complaining landowner has to take account of three crucial facts: first, the court might fail to find that there is a nuisance, leaving the complaining landowner with no right at all; second, even if the court does find that the activity constitutes a nuisance, it might refuse to enjoin it; and, third, this entire highly uncertain process of determining whether there is a right and a remedy is costly, and it is the complaining landowner who carries the legal burden throughout of establishing both her right and the remedy. It is thus likely that the complaining landowner bears the bulk of the cost of being awarded a legal right that is effectively remedied.

This allocation of costs under the private nuisance regime generates two socially valuable, efficiency-enhancing incentives. First, provided that the court is relatively accurate at determining the harm caused by and the social value of the activity that is an alleged nuisance, the fact that the legal right is uncertain and contingent on the outcome of the court’s balancing inquiry may actually enhance the efficiency of private bargaining between the landowners. The intuition is that because neither landowner knows for sure whether she has a right (to continue to operate, or to be free of the harm from such operations), and because clarifying the right is costly, both parties have less incentive to delay and posture strategically in bargaining.<sup>80</sup>

The second efficiency generated by the allocation of the cost of determining private rights over conflicting land uses is that precisely because nuisance litigation is costly, it tends to be what economists call incentive compatible. Because a complaining landowner must incur private litigation

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78 RESTATEMENT (SECOND) OF TORTS § 826(a) (AM. L. INST. 1979).

79 See Thomas W. Merrill, *Trespass, Nuisance, and the Costs of Determining Property Rights*, 14 J. LEGAL STUD. 13, 13 (1985).

80 For a formal demonstration of this point, see Jason Scott Johnston, *Bargaining Under Rules Versus Standards*, 11 J.L. ECON. & ORG. 256 (1995).



costs to have another landowner's activity enjoined as a nuisance, the complaining landowner will pursue such litigation only if her benefit from succeeding—the reduction in harm to her—is greater than her litigation cost. Forcing a complaining landowner to bear the cost of getting a court to declare another landowner's use to constitute a nuisance automatically weeds out cases where the harm is low and the court is unlikely to find a nuisance.

The environmental permits regime does not create such socially desirable incentives. Under the permits regime, it is the private landowner, and not the complaining agency, who must bear the bulk of the cost of persuading a court that the agency does not have a legal right to prevent the land use. This is the opposite of how private nuisance works, where the complaining landowner bears the burden of establishing the nuisance and typically has the highest litigation costs.

Secondly, in determining whether a federal agency such as the USACE has a right to prevent land use, courts do not balance the social value of the landowner's development against the public value of its cessation. While there are a variety of legal issues that may be raised to contest a wetlands or incidental take permit requirement, the harm suffered by the private landowner due to the imposition of development limits that the agency requires before granting the permit is generally legally irrelevant. In neither the Clean Water Act nor the Endangered Species Act did Congress require that either the USACE or the USFWS consider and weigh the decrease in private land value caused by the development limits against the value of wetlands or species preservation at the particular site. Since Congress did not instruct these agencies to consider the decrease in private land value, a court would far exceed its authority in reviewing agency action if it ordered the agency to undertake such a consideration. This is the opposite of how private nuisance, where either the very existence of a right and/or the willingness of a court to grant injunctive relief depends upon a judicial finding that the harm caused by the land use greatly outweighs the social utility of the land development activity.

The final and perhaps most economically significant aspect of the section 404 wetlands permits and section 10 incidental take permits systems is that the threat of fines looms as soon as the relevant agency, the USACE or USFWS respectively, issues a cease and desist order. As in the Duarte case, a landowner can challenge the legality of the permit requirement the agency has enforced via a cease and desist order, but fines begin to accrue as soon as the agency issues the order. With private nuisance, as we have seen, the situation is the opposite: a landowner does not risk fines or imprisonment unless and until the complaining landowner establishes her right to be free from harm and persuades the court to grant an injunction. Only if the landowner actually violates such an injunction would she incur potential criminal sanction.

Each of these features of the environmental permits regime is a source of inefficiency in bargaining over such permits. Because it is the private landowner who has the burden of establishing that the agency does not have a

statutory right to order the landowner's activity to be halted, the incentive simply to avoid litigation costs while ensuring that future development value can be realized itself provides an incentive for the landowner to pay the agency for permission to use her land. As shown with some algebra in the Appendix, the higher are such litigation costs, and the longer they will be incurred, the higher is the price that the agency can extract from the landowner in exchange for the permit. As such costs bear no relationship to the social value or social harm from limiting private land development, if they are too high, they alone can stop socially desirable private land development.

The second feature—that liability for fines accrues as soon as the agency issues a cease and desist order—also increases the chance that the permit deal struck by the agency and the landowner overly restricts development. With fine liability beginning even before a court has determined that the agency actually has the legal right to demand a permit, the longer the landowner holds out as it litigates in the hope of establishing its legal freedom from the permitting requirement, the bigger is the landowner's potential fine liability. In a typical bargaining game, say that between a buyer and seller of a good or service, by holding out and delaying a deal, the buyer increases the cost to the seller of failing to agree to the buyer's offered price. This is due to the time value of money—one can think of the seller as making interest payments on a loan she took to produce the goods, or simply of the lost interest the seller would've been earning on the proceeds of a completed sale. With bargaining in the reverse eminent domain environmental permits system, the situation is reversed. The longer a private landowner holds out litigating and refusing to pay to buy back her development right, the bigger is her accrued fine liability. Because that liability is discharged once agreement is reached and the agency issues the permit, the longer the landowner holds out, the higher is the price that she is willing to pay.

When daily fines exceed net value from operations—something almost surely true in the Duarte case and in many other cases involving small and medium-sized businesses—the price that a landowner will pay for an environmental permit will be determined primarily by the size of the fine liability and litigation costs being incurred. The private value creation allowed by a permit will be relatively unimportant. From a social welfare point of view, this is a disastrous state of affairs. To be sure, when private landowners bargain subject to the regime of contingent entitlements created by private nuisance law, whether a complaining landowner obtains an adjacent landowner's agreement to change how it operates, as well as the price paid for such agreement, does depend in part on the litigation cost of clarifying who owns the entitlement. But the main determinant of whether the complaining landowner can actually enjoin and force a change in the adjacent landowner's operation is how the social cost of such a change compares to its social benefit. And the main determinants of the price in any deal between the landowners to allow operations is the benefit to the complaining landowner and the cost to the enjoined landowner. By contrast, when a private landowner bargains with a federal environmental agency for a permit for its

developed use, the price that the landowner agrees to pay has little to do with how environmental harm from such use compares to its private benefit. The private benefit relevant in such bargaining is the benefit net of the fine liability and litigation costs being accrued by the private landowner. Under the private nuisance regime, there is no fine liability, and most of the costs are borne by the complaining landowner.

For these reasons, even if the environmental agency internalizes what in some sense may be regarded as the true social cost to the environment caused by the private landowner's development, any development restriction that the landowner agrees to in order to get a permit is likely to go too far. The reason is that if she fails to agree to the environmental agency's demands while continuing to operate (as a private landowner subject to private nuisance may do without litigation cost or fine liability), the landowner faces continuing litigation cost plus the accrual of additional criminal fines and perhaps an increasing risk of imprisonment. One may think of the development restriction as buying the private landowner freedom from fines, potential imprisonment, and litigation costs. These bear little or no relationship to either the private development value that the landowner loses or the environmental value conferred on the public gained when the landowner agrees to the development limits.

## II. CONCLUSION: PUBLIC PROPERTY RIGHTS AND THE DESTRUCTION OF PRIVATE VALUE: A BAD POLICY, AND ONE NEVER AUTHORIZED BY CONGRESS

Under the wetlands and species protection federal permitting programs, no government actor—neither the USACE, the USFWS, nor any federal court—is legally required to give any consideration whatever to the loss of private value caused by land development limits included in bargains between landowners and regulators that are negotiated in the shadow of such permitting requirements. Moreover, agencies such as the USACE and USFWS are free to attach whatever value they wish to the environmental benefits of such land development limits. One might well grant that that this is so, but continue to argue that this was a choice made by Congress when it wrote the Clean Water Act and Endangered Species Act. It was Congress, on this argument, that decided that in granting permits for habitat modification, the USFWS had enormous discretion regarding whether and how to give weight to the economic cost of such land development limits. And so too, Congress said nothing about how the USACE should consider and weigh the harm to landowners from land development restrictions imposed in wetlands permits.

This argument forgets that it was not Congress but the agencies themselves—the USACE and USFWS—whose regulatory interpretations literally defined which wetlands count as “waters of the United States” subject to USACE permitting requirements and which private land development activities count as a “taking” of a species for which an incidental take permit is required. The public property rights held by these agencies were not created

by Congress but by the agencies themselves. Only by a narrow majority did the Court in *Sweet Home Chapter* uphold the USFWS's interpretation that significant habitat modification can constitute a potentially criminal species take. Many (if not most) USACE regions continue to tell landowners that whether their lands are regulated wetlands depends upon the application of the *Rapanos* concurrence's amorphous "significant nexus" test. Under this test, virtually any periodically wet piece of land can be subjected to development restrictions imposed by the USACE under its wetlands permitting authority, provided only that USACE biologists opine that the land parcel is part of a larger aquatic ecosystem feeding into an actual river or lake. This vast expansion of the scope of the federal wetlands permitting program has never been endorsed by a majority of the Court, let alone by Congress.

One might well respond—as some members of the Court have over the years—that even without express congressional authorization, the wetlands and species protection permitting programs are nonetheless consistent with policy goals expressed in both the Clean Water Act and Endangered Species Act. But the fundamental policy justification for requiring ex ante permits, rather than relying on ex post damage litigation, is that compensation is of no help when private land development can cause irreversible, noncompensable harm to public environmental resources. Agency practice has belied this justification. In practice, both wetlands and species permitting programs have devolved into systems in which land development is permitted provided that landowners pay compensation deemed to be adequate by federal bureaucrats. On the ground reality reveals that the federal wetlands and species protection programs have little to do with protecting public resources from noncompensable harm, but everything to do with empowering federal environmental bureaucrats to take and redistribute private value.

## APPENDIX

This Appendix presents a derivation of some of the claims made in the text regarding how litigation costs and the accrual of fines under a permitting system change the price a landowner is willing to pay for a permit. The analysis seeks to identify the maximum price that a landowner would pay to obtain a permit under the assumption that without a permit, the landowner credibly contests whether she is legally required to obtain such a permit. In this sense, the landowner's maximum price is determined in the shadow of litigation.

I assume that it takes  $T$  periods for a final judicial decision on the legality of the permit—that is, whether the agency can legally demand it of the landowner. The other notation to be used is as follows:

- $p$  = maximum price landowner is willing to pay;
- $\delta$  = landowner per period discount rate (rate at which future value discounted to present value);
- $v$  = per period net profit from land development activity;
- $F$  = per period fine for development activity without a permit;
- $c$  = per period cost of contesting the legality of permit (litigation cost);
- $q$  = probability that the court upholds the legality of the permit requirement.

In deriving the maximum price,  $p$ , I consider (for simplicity) the case where the fine  $F$  and value from development  $v$  are such that  $v < F$ . In this case, the landowner will cease the activity rather than pay the fine.

Consider first a legal world where there is no fine liability unless and until a court determines that the landowner must obtain a permit. This is somewhat like the private nuisance regime. In this case, having developed, the landowner incurs the per period cost  $c$  to challenge the legality of the permit up until the period  $T$ , at which point that court determines whether the permit is required. If no permit is required, the landowner has no fine liability and realizes the value  $v$  going forward. If a permit is required, the landowner faces a fine of  $F$  per period and so stops its development activity. The landowner chooses between paying the price  $p$  for the permit and contesting the permit. It has a higher net present value from buying the permit at price  $p$  versus contesting its legality provided that:

$$-p + \left(\frac{1}{1-\delta}\right)v > q \left[\frac{1-\delta^T}{1-\delta}\right](v-c) + (1-q) \left[\left(\frac{1}{1-\delta}\right)v - \left(\frac{1-\delta^T}{1-\delta}\right)c\right]$$

which simplifies to:

$$p < qv \left[\frac{\delta^T}{1-\delta}\right] + c \left[\frac{1-\delta^T}{1-\delta}\right] \quad (1)$$

Consider now the legal world where the per period fine  $F$  accrues as soon as the regulator demands that the landowner buy a permit. At time period  $T$ , the court finally resolves whether the permit is legally required. There is no fine liability if the court finds no permit is legally required, but if the court finds that a permit was legally required, fine liability of  $F$  per period

attached for the entire  $T$  periods that have elapsed while legality has been contested. In this world, the landowner is better off paying the price  $p$  for a permit in the first period than she is contesting the permit's legality provided that:

$$-p + \left(\frac{1}{1-\delta}\right)v > q \left[ \left(\frac{1-\delta^T}{1-\delta}\right)(v - c - F) \right] + (1 - q) \left[ v \left( \left(\frac{1}{1-\delta}\right) - c \left(\frac{1-\delta^T}{1-\delta}\right) \right) \right]$$

which simplifies to:

$$p < qv \left[ \frac{\delta^T}{1-\delta} \right] + c \left[ \frac{1-\delta^T}{1-\delta} \right] + qF \left( \frac{1-\delta^T}{1-\delta} \right) \quad (2)$$

By comparing inequality (1) to inequality (2) we can quickly confirm the assertions in the text regarding the determinants of the maximum price that the landowner is willing to pay to obtain a permit and how those determinants change when fines accrue before the legality of the fines is determined. In both (1) and (2), we see that the more complex and costly is litigation over the legality of the permit—in the notation used above, the bigger are  $c$  and  $T$ , the cost and time to resolve the case—the more the landowner will be willing to pay to avoid such a conflict and obtain the permit. Also from both expressions, we see that the higher is  $q$ —the probability that the court finds the permit to be legally required—the more the landowner will pay for it. Next, comparing inequality (2) with inequality (1), we see that in inequality (1), where, as under private nuisance there is no potential fine liability until the legality of the permit requirement has been determined, the fine  $F$  does not influence the price that the landowner is willing to pay to avoid a legal conflict. By contrast, from inequality (2), we see that in the world where fines begin to accrue even before legal rights have been determined, the higher is the fine  $F$  and the probability  $q$  that the court finds the fine was properly assessed (because the permit was legally required), the more the landowner will be willing to pay to avoid fines.

